

*Descriptions of North American HYMENOPTERA.*

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(WITH NOTES BY E. T. CRESSON.)

[Among the MSS. left by my deceased friend, Mr. Benjamin D. Walsh, was found that from which is prepared the present memoir, containing detailed and carefully written descriptions of many species and a few new genera of North American *Hymenoptera*.

Before the MS. (referred to me by Mr. C. V. Riley) came into my hands, I had published in the *Trans. Am. Ent. Soc.*, Sept., 1870, a paper on the Sub-family *Pimplariæ*, in which many species described by Mr. Walsh (in the MS.) as new, were published under other names. In order, therefore, to prevent an unnecessary increase in the synonymy of species, the names given them by Mr. Walsh were suppressed as of no value, and those having priority substituted. The descriptions are carefully prepared, and the comparative remarks, for which Mr. Walsh was always famous, exceedingly valuable to the student.

I owe much to the kindness of Dr. Wm. LeBaron, State Entomologist of Illinois, who made the identification of the species quite an easy task, by placing in my hands for comparison the specimens from which Mr. Walsh made his descriptions. These, together with about three-fourths of the celebrated Walsh Collection, were, most unfortunately, destroyed by the terrible conflagration that visited the city of Chicago in October, 1871.

I have only to add that all that is given below is from the original MS. of Mr. Walsh, excepting the few notes enclosed within brackets.]

**Family TENTHREDINIDÆ.****GENUS HYLOTOMA.**

*Hylotoma scutellata*, Say, ♀. — Bright sanguineous. *Head* blue-black, highly polished and glabrous. Clypeus finely but distinctly rugose, emarginate in an angle of about  $135^{\circ}$ , the apex of which is sometimes more or less rounded off so that the emargination approximates more or less to a circular arc of about  $60^{\circ}$ . Labrum transverse, squarely truncate at tip or slightly emarginate. Antennæ  $\frac{2}{3}$  as long as the body, black, very rarely (1 ♀) tipped with rufous; the long terminal joint finely rugose and opaque, but unarmed. *Thorax* highly polished and glabrous; a vertical stria, having the appearance of a suture, always dividing the side of the collar into two subequal triangles in the dried specimen. Prothorax, tegulæ, mesonotum except almost always the scutel (18 out of 21 ♀), anterior angles of the collar or very rarely (1 ♀) only its extreme anterior angles, lower surface of the mesothorax up to the suture dividing it from the sanguineous pleura, and the entire mesothorax, including the basal plates, all blue-black. Very rarely (1 ♀) there is a lateral sanguineous spot on the basal plate. Cenchri whitish. *Abdomen* polished and glabrous; basal membrane pale luteous. Last ventral joint more or less tinged

with luteous. Ovipositor dull luteous, each plate with a narrow blackish vitta in its middle; sheaths black, sanguineous on their superior base. *Legs* blue-black; tarsi blackish. *Wings* clouded with fuliginous, opaque blue-black along the costal margin, the postcostal space mostly hyaline. Veins, costa and stigma black. Hind wings paler, the hyaline space extending on to the disk. The last submarginal cross-vein very rarely (2 ♀) with a stump of a vein springing from it at the curve. Length ♀ .35-.40 (.45 Say) inch. Front wing ♀ .38-.40 inch.

♂ Differs from ♀ only as follows:—1. The antennæ are  $\frac{1}{2}$  (not  $\frac{2}{3}$ ) as long as the body, and the hairs on the last joint are  $\frac{2}{3}$  its breadth. 2. The scutel is full as often black as sanguineous. 3. It is often the case that only the extreme anterior angle of the collare is black. 4. From 2 to 6 of the basal oints of the dorsum of the abdomen are often black (5 ♂ out of 9 ♂) except laterally, and the last ventral is never luteous, but often tipped more or less widely with black. 5. The wings are much paler, the costa only blue-black. Length ♂ .27-.30 inch. Front wing ♂ .28-.30 inch.

Nine ♂, twenty-one ♀. A very handsome species. Say describes the ♀ only, and from a single specimen with mutilated legs. He makes the ground-color to be "fulvous" or "reddish-yellow," instead of sanguineous as in all my ♂ ♀; but his specimen was perhaps alcoholic. He gives no habitat for the species. It is singular that this insect should vary in both sexes, so as sometimes to lack the very character from which Say's name is derived, viz. the red scutel. His ♀ was .05 inch longer than any of mine. In 1 ♂ 1 ♀ with black scutel and 1 ♀ with sanguineous scutel the 2d recurrent vein coincides with the 2d submarginal cross-vein, and all the intermediate grades occur between this and the normal structure. The same thing occurs also sometimes in *dulciaria*, Say, and *cal-canea*, Say, as shown below. As it is upon this character that the genus *Scobina*, St. Farg. & Serv., appears to have been exclusively established, it must in that case be suppressed. (See Brullé *Hy-men.* p. 669.)

***Hylotoma coccinea*, (??) Fabr.** ♀.—Differs from the above ♀ only as follows:—1. The head, except the tips of the mandibles, the palpi, and sometimes the labrum, which are dusky, and the eyes and antennæ, which are black, is sanguineous. 2. The clypeus is scarcely rugose. 3. The antennæ are only  $\frac{1}{3}$  as long as the body. 4. The entire thorax is bright sanguineous, except the tegulæ and a mesonotal spot above the origin of each one of the 4 wings, which are black, and the cross-carinæ and basal plates of the metanotum, which are obfuscated. 5. The hind coxæ, except at tip, are sanguineous; the rest of the legs black. 6. The hind wings are as dark as the front ones, except on the costa; and in both wings of 1 ♀ the last submarginal cross-vein has a stump of a vein springing from it. Length ♀ .43-.45 inch. Front wing ♀ .38-.39 inch.

♂ Differs from ♂ *scutellata* only as follows: 1. As in ♀ *coccinea*, the clypeus is scarcely rugose, while in all my ♂ *scutellata* it is very obviously so. 2. The thorax is entirely bright sanguineous, except the prothorax, tegulæ, a large mesonotal spot above the origin of each of the 4 wings, the lower surface of the mesosternum, and the metanotum, which are all black; but the basal plates are pale fuscous. 3. The abdomen is bright sanguineous, with only the tip of the last ventral joint fuscous. 4. The front wings are fuliginous up to the stigma, hyaline beyond the stigma. Length ♂ .28 inch. Front wing ♂ .28 inch.

One ♂, two ♀. Fabricius, as Mr. Norton kindly informs me, describes his *coccinea* as "Sanguineous; back of the thorax and the legs black; wings obscure cyaneous, hyaline at the apex." From such a brief notice it is impossible to decide whether my species is identical with his, and the point can only be determined from inspecting his original specimens, if still in existence. Arguing such questions as these is simply labor lost, and scientifically as unprofitable as puzzling over any other archæological enigma. My ♂ might be taken for an extreme variety of *scutellata*, but for the different sculpture of the clypeus and the conspicuous hyaline tips to the wings. The ♂ head being black and the ♀ head sanguineous is very remarkable and unusual in *Tenthredinidæ*, and possibly the ♂ may be a distinct species.

**Hylotoma dulciaria**, Say, ♀.—Luteo-rufous. *Head* blue-black, polished and glabrous. Clypeus emarginate in a very obtuse angle, finely but distinctly rugose. Labrum transverse, truncate at tip. Palpi varying from pale dusky to whitish. Antennæ black,  $\frac{1}{2}$  as long as the body, the last joint unarmed and with fine rugæ. *Thorax* polished and glabrous, verging on rufous above. Tegulæ and metanotum, including the basal plates, more or less stained with fuscous. Lower surface of the mesothorax blue-black up to, but never beyond, the suture dividing it from the pleura. Cenchri whitish. *Abdomen* polished and glabrous, rarely with a fuscous dorsal dot at the tip of joints 3-5; the sheaths (last ventral), except sometimes their extreme base, blue-black; ovipositor concealed. *Legs* blue-black; tarsi blackish, the 1st joint of the hind tarsi sometimes whitish on the basal  $\frac{3}{4}$ . *Wings* clouded with fuliginous, darker along the costal margin with some blue-black reflections. Veins, costa and stigma black. Length ♀ .27-.35 inch. Front wing ♀ .30-.34 inch.

♂ Differs from ♀ only as follows:—1. The antennæ are  $\frac{2}{3}$  as long as the body, the usual hairs on the last joint nearly as long as the joint is wide. 2. The tegulæ and the entire thorax above and below, except the cenchri which are whitish and the basal plates which are luteo-rufous, are blue-black. 3. The abdomen is immaculate. 4. The wings are several shades paler, but there is an obvious darker cloud extending from the base of the stigma to

the usual dark dot in the disk of the 2d submarginal, which cloud exists in ♂ also, but is not noticed from the rest of the wing being equally clouded. Length ♂ .27 inch. Front wing ♂ .27 inch.

One ♂, six ♀. Say describes very briefly from a single ♀, the ♂ being unknown to him. The remarkable false suture on the collare, which exists in the two preceding species, is not found here. In my ♂ and one of my ♀♀, the 2d recurrent vein coincides with the 2d submarginal cross-vein.

**Hylotoma calcanea**, Say (= *scapularis*, Klug, according to Norton), ♀. —Blue-black. *Head* polished and glabrous. Clypeus emarginate in a very obtuse angle, finely punctato-rugose. Labrum transverse and truncate at tip. Palpi pale dusky or whitish. Antennæ black, almost  $\frac{2}{3}$  as long as the body, finely rugose and scarcely pubescent. *Thorax* polished and glabrous, pale rufous. Tegulae, metanotum including the basal plates, except sometimes a small whitish band between and behind the cenchri, lower surface of the mesothorax up to the suture, and occasionally its entire pleura as well as the humeral sutures and some clouds on the collare, and also the tip of the scutel, all blue-black. *Abdomen* glabrous and polished, occasionally coal-black above. Basal membrane whitish, sometimes pale dusky. Ovipositor luteous; its sheaths black. *Legs* blue-black; tarsi blackish; the basal  $\frac{3}{4}$  of the 1st joint of the hind tarsi, and sometimes the basal  $\frac{1}{2}$  of joint 2 also, whitish. *Wings* clouded with fuliginous, darker along the costa with some blue-black reflections, more hyaline towards the tip in the front wings. Veins, costa and stigma black. Length ♀ .37-.40 (less than .35 Say) inch. Front wing ♀ .37-.40 inch.

♂ Differs from ♀ only as follows:—1. The black color is but slightly tinged with blue. 2. The antennæ are fully  $\frac{2}{3}$  as long as the body, the usual hairs on the last joint nearly as long as the joint is wide. 3. The thorax, including the basal plates, is entirely black, except the collare, which is rufous; 4. The legs are entirely black, except that in the front legs the knees, tibiae and tarsi are anteriorly whitish, and sometimes in the hind legs the whole of the tibiae and all but the extreme tip of the two basal tarsal joints, are whitish. 5. The wings are fuliginous, hyaline in the front wings beyond the stigma and in the hind wings at the extreme tip. Length ♂ .25-.27 inch. Front wing ♂ .25-.26 inch.

Two ♂, three ♀. Say's description is very brief and imperfect, and, though he evidently describes the ♀ only, he says nothing of the sex. He describes the tarsi as "white or whitish at base," whence it would be inferred that all six tarsi are so. In one wing of one ♂ the 2d recurrent vein exactly coincides with the 2d submarginal cross-vein and in the other wing almost so; and in both wings of one ♀ the 3d submarginal cross-vein bears a stump of a



vein. Mr. Norton asserts that "ordinarily the ♂ and ♀ are alike," and he describes as "Variety *a* ♂" a ♂ apparently identical with mine, which is said to have been taken *in coitu* with the normal ♀. (*Proc. Ent. Soc. Phil.* iii. p. 6.)

### Family ICHNEUMONIDÆ.

[The annexed figure, representing the front wing of *Ichneumon*, is here given to indicate the *locus* of the bullæ A—G, frequently referred to in the descriptions given below. For a detailed description of these bullæ, and remarks about their generic and specific value, the reader is referred to Mr. Walsh's paper "On Phytophagic Varieties and Phytophagic Species," in *Proc. Ent. Soc. Phil.* vol. v. p. 209, and vol. vi. p. 242.—CRESSON.]



#### JOPPIDIUM, new genus.

*Head* transverse; face flat; clypeus large, transversely oval, the clypeal suture distinct; mandibles large, bidentate, and, as well as the whole mouth, prominent. Antennæ moderate, setiform; the 1st joint obliquely truncate above nearly to its base, the 2d joint large, projecting beyond the tip of the 1st; first 3 joints of the flagellum long, subequal, the rest gradually shorter, the terminal  $\frac{1}{2}$  ♀ flattened except at tip and dilated to about double its width elsewhere (as in *Joppa* ♀ Brullé *Hym.*, Plate 43, fig. 1a). *Thorax* with the mesonotum gibbous and the parapsidal grooves usually distinct; scutellum hunched and rather elevated; metathorax gradually declivous, the typical areas mostly obliterated. *Abdomen* peduncled, elongate-oval, basally depressed, slightly compressed at tip, much narrower than the thorax, and a little longer than the head and thorax together. Joint 1 very long, slightly and gradually inflated towards the tip, the spiraculiferous tubercles placed at about  $\frac{2}{3}$  of the way to the tip, where the peduncle terminates and there is a slightly curved geniculation. Joint 2 longer than wide, the rest gradually shorter and shorter, the terminal joint not retracted. Venter excavated, longitudinally bicarinate. Ovipositor moderate; the "anus slit," as it is termed. *Legs* long and slender, the femora not incrassate, the hind femora and trochanters longer than usual; spurs normal; 1st tarsal joint of the front legs basally more emarginate than usual, the 4th tarsal joint in all the legs short and entire; claws simple, longer than the pulvillus.

*Wings* wider than usual ; radial area elongate ; areolet large, pentagonal ; 1st recurrent vein strongly curved in the middle ; 2d recurrent vein with the salient angle pretty distinct, but very obtuse. Bullæ four, A, B, CD and E, all very distinct and normally located.

Distinct from *Joppa*, by the antennæ ♂ not being submoniliform, by the long and slender 1st abdominal joint, by the long ovipositor, and by the entire 4th tarsal joint. From *Baryceros*, by the antennæ being dilated only in ♀ and by the areolet not being obsolete. From *Helwigia*, by the antennæ being dilated only in ♀, by the abdomen not being strongly compressed, by the ovipositor not being very short, by the cubito-discoïdal cell not receiving both the recurrent veins, and by the areolet not being obsolete. And from *Euceros*, by the abdomen not being sessile, by the ovipositor not being very short, and by the areolet not being obsolete.

***Joppidium ruficeps***, n. sp. — ♀ — Black. *Head* subopaque, finely and densely punctate, and as well as the mouth, rufo-sanguineous, except the disk of the occiput, a cloud around the ocelli, the region between and above the origin of the antennæ, and the extreme base and tip of the mandibles. Antennæ  $\frac{2}{3}$  as long as the body, rufous on their basal  $\frac{1}{2}$ , shading into yellow on their middle  $\frac{1}{2}$ , their terminal  $\frac{1}{2}$  brown-black. First joint of flagellum 4 times as long as wide, the 2d and 3d joints each about  $\frac{1}{2}$  shorter than the preceding. *Thorax* subopaque, with long, sparse, gray pubescence, confluent and rather coarsely punctate, more finely on the mesonotum except the scutellum. Carinæ of the metathorax obsolete except the transverse carinæ of the lateral areas and a trace of their hind carinæ. Tegulæ piceous. *Abdomen* polished, with rather sparse, almost microscopic punctures and appressed pubescence. Joint 1, 5 times as long as wide,  $\frac{1}{2}$  wider at tip than at the extreme base, suddenly contracted behind the base to  $\frac{2}{3}$  its basal width, thence with its sides, except a small spiraculiferous tubercle, nearly straight to the tip ; the carinæ only indicated by a small, shallow fovea at the extreme base. Joint 2 longer by  $\frac{1}{2}$  than wide,  $2\frac{2}{3}$  times as wide at tip as at base ; 3 slightly shorter than wide ; 4-8 much shorter than wide, and all of them rufo-sanguineous. Venter blackish, the base of joint 1 and the tip of 1-3 whitish ; the carinæ of 4 and 5, and the whole of 6, rufo-sanguineous. Ovipositor piceous, scarcely  $\frac{1}{2}$  as long as the body ; sheaths brown-black, basally not quite  $\frac{1}{2}$  as wide as the last tarsal joint of the hind legs, terminally a little tapered. *Legs* yellow, with all their coxæ and the hind trochanters and femora, except the knees, black ; the 4 front legs with their trochanters and femora, except the knees, rufous, the upper surface of the middle trochanters blackish. *Wings* subopaque, black ; veins black ; stigma black, its extreme base paler. Areolet with its inner and outer sides nearly parallel. Bullæ large and white ; on the side of the areolet which

adjoins the outer discoidal cell, a small, internal semi-bulla not encroaching on the vein itself. Length ♀ .52 inch. Front wing ♀ .42 inch. Ovipositor .23 inch.

The ♂ differs from the ♀ only as follows:—1. The black space above the antennæ is confluent with the black cloud around the ocelli, leaving on the front only the orbits rufo-sanguineous. 2. The antennæ are  $\frac{3}{4}$  as long as the body; the yellow color on their middle extends nearer to the tip; and the 1st joint of the flagellum is only thrice as long as wide. 3. The tubercles on abdominal joint 1 are more robust than in ♀. The abdomen is black, except joint 8, which is retracted, and the penis, both of which are rufous; and the venter is blackish, except the base of joint 1, which is whitish. Length ♂ .50 inch. Front wing ♂ .45 inch.

One ♂, one ♀, taken on umbelliferous flowers in July. The ♂ may perhaps be *Banchus æquatus*, Say, but the mouth and orbits are not "yellow" but rufo-sanguineous; there is no "whitish dot" on the stigma but only a paler stain; and the tegulæ is not "honey-yellow" but piceous. The 4 anterior legs are also described by Say as "honey-yellow," whereas in my species their femora are rufous and their tibiæ and tarsi yellow, to say nothing of the black coxæ. Say may have described from an alcoholic specimen, in which, as usually happens, the sanguineous color had changed to yellowish. I have very numerous specimens of his *Hylotoma scutellata*, both ♂ and ♀, the pale color in all which is bright sanguineous, while Say describes it as "reddish yellow." I have also two specimens of his *Podabrus tricoloratus* (Coleoptera), in which the lateral edges of the thorax are sanguineous both in the recent and in the dry individual, while Say describes them as "yellow" or "rufous." Dr. Velie brought from Colorado two pinned and numerous alcoholic specimens of a beautiful new species of *Ædipoda* (Orthoptera), allied to *sulphurea*, Fabr. In the former the wings are a deep, full scarlet; in all the latter they are a dingy, very pale salmon-color. Authors that are unfortunately compelled to describe from alcoholic specimens, should state the fact; otherwise their colorational specifications are generally more or less unreliable, grass-green after immersion in alcohol often changing to brown, and sanguineous to yellow or salmon-color. I cannot even guess what Say intended by saying of his *Banchus æquatus* "hypostoma with two slight lobes situated longitudinally," unless he refers to the cheeks, which are, of course, situated transversely, although in my *ruficeps* each of them is longitudinally elongated in consequence of the abnormal prominence of the whole mouth.

## GENUS CRYPTUS, Fabr.

SECTION 1, *Cresson*.—"Scutel and abdomen black."

**Cryptus robustus**, Cress.—♀.—Mr. Cresson correctly remarks of the ♀ that "joints 2-4 of the four anterior tarsi are short [equilaterally] triangular, dilated and spinose, which seems to be an important character of the species." (*Proc. &c.* iv. p. 265.) Judging from the analogy of ♂ ♀ *Labena*, Cress., where the hind tarsi of ♂ are normal and those of ♀ abnormal, I should infer that this is a mere sexual character peculiar to ♀. I have no doubt, judging from the descriptions, that *Cr. crassicornis*, Cress. is the ♂ of *robustus*, as doubtfully suggested by Mr. Cresson (*Proc. &c.* iv. p. 265), and nothing is said as to its tarsi being abnormal. Eight ♀ from Colorado, collected by Dr. Velie.

SECTION 2, *Cresson*.—"Scutellum pale; abdomen black." Not represented.

SECTION 3, *Cresson*.—"Scutellum with pale markings; abdomen red, or red and black."

**Cryptus atricollaris**, n. sp.—♀.—Rufous. *Head* black, subopaque, very finely and rather closely punctate. Wide orbits, broadly but not deeply emarginate opposite the antennæ, a spot on the vertex just behind the ocelli which is often very minute but rarely absent, clypeus, and very often a large, quadrate spot above it and separated from it only by the black clypeal suture, cheeks, mandibles except their teeth, and palpi, all white. Antennæ nearly as long as the body, brown-black; the 1st joint of the scape, and sometimes 3 or 4 of the following joints, rufous beneath; flagellum with more or less of the tip of joint 5, the whole of 6-9, and sometimes the base of 10, white above and below. Joint 1 of the flagellum 6 times as long as wide, joint 2 shorter by  $\frac{1}{2}$ ; the rest gradually shorter and shorter. *Thorax* tinged with yellow below and on the metathorax, subopaque, very finely and densely punctate; the parapsidal grooves distinct but not impressed; the disk of the collare on each side longitudinally aciculate. Metathorax with the normal areæ obsolete, except the cross-carinæ and the acute, thorn-like tips of the lateral areas. Tegulæ, a line under the front wing sometimes obscurely prolonged downwards on the front edge of the mesothoracic pleura, a broad, pointed line underlying the humeral suture to its very tip, a subquadrate spot on the disk of the mesonotum, both scutels, and the anterior edge of the collare, all white. The rest of the collare, as well as the humeral suture, more or less of the depressed areas surrounding the 2 scutels, and sometimes the parapsidal grooves and rarely the entire lateral lobes of the mesonotum and the base of its middle lobe, all black. *Abdomen* oval, not much longer than the head and thorax together, polished, with very fine, rather sparse, shallow punctures, sometimes tinged with yellow, especially at its base; the tip of joint 1 generally more or less tinged with white. Joint 1,  $2\frac{3}{4}$  times as

long as wide,  $2\frac{1}{2}$  times as wide at tip as at the extreme base, its narrowest part  $\frac{1}{3}$  of the way to the tip, gently concave from near the base  $\frac{2}{3}$  of the way to the tip, where the small spiraculiferous tubercles are located, thence with its sides slightly convex and scarcely divergent. Carinæ only represented by a shallow, narrow, dorsal excavation reaching to the middle, thereafter obsolete. Joint 2 as long as wide, and twice as wide behind as before; the rest rapidly shorter and shorter. Joint 3 almost always with a dark capillary transverse line behind the middle, and 4 almost always with one on the middle. Venter excavated, longitudinally unicarinate, tinged with yellow except at tip. Ovipositor scarcely half as long as the body, piceous, sometimes rufous; sheaths black, basally as wide as the last tarsal joint of the hind legs, and slightly tapered towards their tip. *Legs* pale rufous; front coxæ and trochanters, middle trochanters, tips of middle coxæ, and the hind tarsi except generally their extreme base, all whitish; hind tibiæ, especially towards their tips, infuscated. *Wings* subhyaline, sometimes tinged with smoky yellow; veins black; stigma rufous edged with black, but always pale yellowish at base, and rarely entirely pale except the black edging. Radial area elongate, its posterior angle about  $135^{\circ}$ . Areolet with its sides always converging towards the radial area, so that its anterior side is about equal to either one of its two posterior sides. First recurrent vein obtusely angulated, sometimes with, sometimes without a stump of a vein at the angle; second recurrent vein gently convex exteriorly or obsoletely angulated. Length ♀ .30-.38 inch. Front wing ♀ .30-.33 inch. Ovip. .14-.16 inch.

The ♂ differs from ♀ only as follows:—1. The entire face and the cheeks nearly up to the vertex are white, and the spot on the vertex is larger and never absent. 2. The antennæ are full as long as the body; in the flagellum all but the extreme base of joint 10, the whole of 11-15, and the extreme base of 16, are white (instead of joints 5-10), and its 1st joint is only 4 times as long as wide. 3. The mesothorax is black above and for a short space beneath the front wing, except in both cases the white markings, and the rest of it is white; the hind surface of the metathorax is also white, and its upper surface sometimes entirely black. 4. The abdomen is elongate-oval,  $\frac{1}{3}$  longer than the head and thorax together. Joint 1 is full thrice as long as wide, and only twice as wide at tip as at the extreme base; its tubercles are much larger, and behind them the sides of the joint are parallel; and joint 2 is only twice as wide at tip as at base. 5. The 4 front legs have their coxæ and all their trochanters white, the hind coxæ have a terminal white spot above, and the hind tarsi are entirely white. Length ♂ .30-.36 inch. Front wing ♂ .25-.27 inch.

Three ♂; nine ♀. We find the ♂ pectus white and the ♀ pectus rufous in *Mesosthenus thoracicus*, Cress., also, and in many other *Ichneumonidæ*. Distinct at once from *Cr. iridescens*, Cress., ♂ and *Cr. soror*, Cress., ♂ by the white annulations of the antennæ ♂ ♀ and the white face and pectus ♂. From *Cr. semirufus*, Brullé ♀ (N. Am., length .46 inch, ovip. .30 inch), the ♀ is separated by the uninterrupted orbits, by the mesosternum not being

black, by the smaller size, and by the relatively smaller length of the ovipositor, viz. less than  $\frac{1}{2}$  instead of  $\frac{2}{3}$  of the body.

**Cryptus rhomboidalis**, n. sp.—♀.—Differs from the normal *atricollaris* ♀ only as follows:—1. The size is almost  $\frac{1}{2}$  smaller. 2. The orbits are widely interrupted behind the eyes, and are relatively narrower except on the face, and there is no quadrate white spot above the clypeus and none on the vertex. 3. The antennæ are absolutely as stout as in *atricollaris*, and therefore relatively much stouter; the white annulus is narrowly brown-black beneath, and the first joint of the flagellum is only  $3\frac{1}{2}$  (not 6) times as long as wide. 4. The thorax is nowhere tinged with yellow; there is a large rhomboidal black spot in front of the middle coxæ, prolonged in a narrow line to the front coxæ; the anterior edge of the mesothoracic pleura, and all the depressed areas surrounding the 2 scutels, are black; the white line under the humeral suture stops short of its extreme tip; and there is no white spot on the disk of the mesonotum. 5. Instead of the tip of abdominal joint 1, the tips of two or three of the anal joints are narrowly white. 6. In the 4 front legs the coxæ and trochanters are all white; in the hind legs the femora and tibiæ are dark rufous, the latter infuscated at the extreme tip and whitish on their basal  $\frac{1}{3}$ , and the tarsi are pale rufous. 7. The radial area is less elongate, its posterior angle being only  $120^\circ$ . Length ♀ .17 inch. Front wing ♀ .15 inch. Ovip. .07 inch.

One ♀; ♂ unknown. Distinct from *iridescens*, Cress. ♂ and *soror*, Cress. ♂ by the thorax not being generally black and by the abdomen not being partly black, and from the former also by the unicolorous hind tarsi. Comes very near the brief and indefinite description of *semirufus*, Brullé (N. Am.), but differs by the metathorax not being more strongly punctured than the rest of the thorax, by the much smaller size (about  $\frac{1}{3}$ ), and by the relatively shorter length of the ovipositor ( $\frac{1}{2}$  the body instead of  $\frac{2}{3}$ ).

**Cryptus cinetipes**, n. sp.—♀.—Differs from the normal *atricollaris* ♀ only as follows:—1. The size is almost  $\frac{1}{2}$  smaller. 2. The orbits are very narrow, and are obsolete except on the face; there is no white spot above the clypeus and none on the vertex, and the cheeks are black. 3. The antennæ are only  $\frac{2}{3}$  as long as the body, absolutely nearly as stout as in *atricollaris* ♀, and therefore relatively much stouter; besides the scape, joints 1-3 of the flagellum are rufous beneath; the lower surface of the white annulus is narrowly tinged with dusky; and joint 1 of the flagellum is only 4 (not 6) times as long as wide. 4. The thorax is nowhere tinged with yellow. In the metathorax the whole posterior sides of the lateral and central areas are present, so as to show a complete posterior area; there is no discoidal white spot on the mesonotum; the anterior and upper edge of the mesothoracic pleura is black so as to enclose the white line under the front wing; all the depressed areas surrounding the two scutels are black; and there is a large rhomboidal black spot before the middle coxæ, prolonged

in a narrow line to the front coxæ. 5. Instead of the tip of joint 1, the tips of abdominal joints 6-8 are narrowly white; and joint 1 is only twice as wide at tip as at its extreme base. 6. In the 4 front legs the coxæ and trochanters are all white, and there is an indistinct whitish annulus at the base of the middle tibiæ. In the hind legs the tips of the coxæ and the whole of the trochanters are whitish; the basal  $\frac{1}{2}$  of the tibiæ, the spurs, and the basal  $\frac{2}{3}$  of tarsal joints 1 and 2, are all white; and the extreme tip of the femora and the terminal  $\frac{1}{2}$  of the tibiæ all round, and their middle  $\frac{2}{3}$  exteriorly, are all black. 7. The radial area is less elongate, its posterior angle being only about  $120^{\circ}$ . Length ♀ .19 inch. Front wing ♀ .18 inch. Ovip. .07 inch.

The ♂ differs from ♀ only as follows:—1. The tips of the cheeks and the entire face, except a minute black spot below each antenna, are white. 2. The antennæ are full as long as the body; the scape is rufous except a black dot above and a large white spot below; and the 1st joint of the flagellum is rufous below. Instead of the tip of joint 5 and the whole of joints 6-9, it is the tip of joint 9, the whole of 10-14, and the base of 15, that are white in the flagellum all around. 3. The lower  $\frac{1}{2}$  of the pleura, and the mesothoracic sternum below, are white; the black spot before the middle coxæ very small. 4. The abdomen is elongate-oval,  $\frac{1}{3}$  longer than the head and thorax together, and rufous immaculate, save that the extreme tip is obfuscated. 5. The hind tarsi are entirely white, except joints 4 and 5, and a dot at the tip of joint 1, which are fuscous. Length ♂ .27 inch. Front wing ♂ .20 inch.

One ♂; one ♀. The ♀ comes very near *rhomboidalis* ♀, n. sp., especially in the rhomboidal black spot on the pectus, whence that species takes its name, but is sufficiently distinct by the short orbits, the black cheeks, the whitish hind trochanters, the white hind spurs, and the biannulated hind tarsi. From the other three species belonging to this group, it differs in the same way as *rhomboidalis*. The sexual distinction in the *locus* of the antennal annulus is remarkable, and occurs also in *Cr. atricollaris*, n. sp.

*Cryptus rufifrons*, n. sp.—♀.—Differs only as follows from the normal *atricollaris* ♀:—1. The size is rather smaller. 2. The orbits (very wide above the cheeks), face, clypeus, mandibles except their teeth, and cheeks, are all pale rufous; and the palpi are yellowish white. 3. The antennæ are only  $\frac{2}{3}$  as long as the body, absolutely full as stout as in *atricollaris* ♀ and therefore relatively stouter; the white annulus is narrowly tinged with dusky below, especially on joint 9; and the 1st joint of the flagellum is only 4 (not 6) times as long as wide. 4. The thorax is nowhere tinged with yellow. The metathorax has the lateral areas, as well as their cross-carinæ, pretty distinct; a small triangular basal area; a small and indistinct obtriangular central area; and a large, declivous, pentagonal, posterior area. The white line under the front wing is conspicuously prolonged downwards; the white line under the humeral suture does not nearly attain its tip and is obtuse in front; there is no discoidal white spot on the mesono-



tum; and the metathoracic scutel is rufous, not white. The collare, except its white lines and a large black spot above, is rufous; all the depressed areas surrounding the 2 scutels are black; and there is a small black spot in the excavation before the middle coxæ. 5. Instead of the base, abdominal joints 6-8 are tinged with yellow. Joint 1 is thrice as long as wide, and thrice as wide at tip as at its extreme base, and its tubercles are pretty large and acute; the capillary line on joint 3 is distinct, that on 4 obsolete; and the ovipositor is rufous. 6. The legs are pale rufous; the 4 front legs with their coxæ and trochanters pale yellow; the hind legs with their tibiæ and tarsi obfuscated. 7. The posterior angle of the radial area is  $120^{\circ}$ , and the area consequently is less elongated. Length ♀ .27 inch. Front wing ♀ .22 inch. Ovip. .10 inch.

One ♀; ♂ unknown to me. Distinct by its rufous face, &c., from all the other species belonging to this section.

**Cryptus?** (*Ischnus*, Cress.) **albitarsis**, Cress.—♂.—In one specimen the white bilobed spot on the disk of the face is confluent with the white orbits; and in both the clypeus is white, except its extreme tip, which is black; and there are very narrow white orbits behind, but not above, the eye. The 1st joint of the flagellum is full thrice as long as wide. In the thorax the parapsidal grooves are deeply impressed, and in one specimen the white line underlying the humeral suture is reduced to a mere basal dot. In one specimen the scutel is entirely white. In the metathorax the lateral areas want their outer sides, the basal area is obsolete, and the central area is pentagonal (not "subquadrate") with its lateral sides indistinct; posterior area indistinctly hexagonal. In the wings the radial area is elongate, its posterior angle being  $135^{\circ}$ . The areolet is rhomboido-pentagonal, its inner and outer sides subequal and the longest, the two hind sides subequal and each  $\frac{1}{2}$  shorter, and the anterior side  $\frac{1}{2}$  shorter than the outer one. Legs black. The front legs with their coxæ inferiorly, and the whole of their trochanters, knees, tibiæ, and tarsi, white; and the front face of the femora pale rufous. Middle legs the same, except that the 2d trochanter is black and the 1st is vittate above with black, and that the entire base of the femora is black. Hind legs, with sometimes the basal  $\frac{2}{3}$  of the basal trochanters beneath, and always the tarsus, except the extreme tip and the basal  $\frac{1}{2}$ — $\frac{2}{3}$  of joint 1 which are dusky, white. Abdomen 8 times as long as wide, the 1st joint 6 times as long as wide, only  $\frac{1}{3}$ — $\frac{1}{6}$  wider at the tip than at the extreme base, the tubercles placed  $\frac{2}{3}$  of the way to the tip. Joint 2,  $2\frac{1}{4}$  times as long as wide, and  $1\frac{1}{4}$  times as wide at tip as at base. The rest rapidly shorter and shorter. Length ♂ .43-.45 (.37-.42 Cress.) inch. Front wing ♂ .27-.29 inch.

Two ♂; ♀ unknown to me. The discrepancy in the coloration of the legs, as compared with Mr. Cresson's description, is considerable, and may be attributed partly to variation, partly to alcoholic transcoloration, and partly perhaps to the sacrifice of verity to brevity in the description. It is singular that in every

one of twelve species referred to *Ischnus* by Cresson, besides *Ischnus? paratus*, Say, 1828, the ♂♂ only are known; so that it is left as yet uncertain to what genus they really appertain. Mr. Cresson's specimen or specimens of this species, like mine, came from Illinois, and one received by me from him since the above was written agrees in every respect with the above description down to the minutest details in the legs.

[*Ischnus albitarsis*, Cress., is doubtless the ♂ of *Cryptus americanus*, Cress., and varies much in coloration, especially of face and legs, and also in size.—CRESSON.]

***Cryptus nigricalceatus***, n. sp.—♂.—Differs from the above only as follows:—1. The bilobed spot on the face is confluent with the white orbits, and there are very narrow white orbits behind, but not above, the eye. 2. The white line underlying the humeral suture is reduced to a mere basal dot. 3. There is no "white spot above the anterior coxæ," i.e. a more or less abbreviated white line on the anterior edge of the collare. 4. In the front, as well as in the middle legs, the 2d trochanter is black; in the 4 front legs the terminal  $\frac{1}{2}$  of the tarsi is dusky; and in the hind legs the entire tarsus is so. Length ♂ .35 inch. Front wing ♂ .25 inch.

One ♂; ♀ unknown to me. It is only by the two last characters recited above that this insect can be separated from *albitarsis*, as the two first occur sometimes in that species. It may perhaps be a mere variety of that species, but it will require a good series of specimens to prove the fact. As a general rule, the coloration of the legs is pretty constant in this family; but in *Cr. iridescens*, Cress., the hind tarsi vary almost as much in their coloring as do those of *albitarsis* and *nigricalceatus*, with all the intermediate grades.

[This is merely a variety of *albitarsis*.—CRESSON.]

***Cryptus [iridescens]***, Cress.—♂.—Black. *Head* opaque, very minutely punctate, subpolished on the vertex and clypeus. Orbits very narrow and subobsolete or sometimes obsolete on the face, interrupted opposite the antennæ, broader and almost always distinct to the commencement of the vertex, and elsewhere obsolete, the terminal  $\frac{1}{2}$ — $\frac{2}{3}$  of the clypeus almost always, the mandibles except their teeth, and the palpi, all white. Antennæ brown-black with the basal joint bright rufous beneath and the membranous base of the 1st joint of the flagellum often rufous all around,  $\frac{3}{4}$ — $\frac{4}{5}$  as long as the body, rather slender, joint 1 of the flagellum 4—4 $\frac{1}{2}$  times as long as wide; joint 2 shorter by  $\frac{1}{4}$ ; the rest slowly shorter and shorter. *Thorax* opaque, closely and very finely punctate, less so on the mesonotum which is subpolished; parapsidal grooves acute but not impressed; the usual glabrous polished spot on the hind edge of the mesothoracic pleura very obvious. Metanotum more coarsely rugoso-punctate, its carinate areas absent, except the

cross-carinæ of the lateral areas and a trace of their tips, and a semicircular basal area, the disk of which last is polished and smooth. Tegulæ, a short line under the front wing, a line underlying the humeral suture nearly to its tip, which line is usually resolved into a basal and terminal dot, the latter and sometimes both of which are often obsolete, both scutels, the anterior edge of the collare generally, and an obscurely-defined, horseshoe-shaped spot on the hind part of the metathorax, sometimes reduced to a mere roundish spot on the tip of each lateral area, sometimes entirely obsolete, all white. *Abdomen* rufous, elongate, oval, subpolished, with very minute rather sparse punctures. Joint 1,  $3\frac{1}{2}$  times as long as wide,  $2\frac{1}{2}$  times as wide at tip as at base, its sides gently concave  $\frac{2}{3}$  of the way to the tip, where the small tubercles are placed, thence subparallel and subconvex to the tip. Joint 2 longer by  $\frac{1}{3}$  or  $\frac{1}{2}$  than wide, and twice as wide at tip as at base; joint 3 square or rather shorter than wide; the rest slowly shorter and shorter. Base and extreme tip of joint 1 generally whitish, and a large, semicircular, dorsal, white spot always on joint 7. Basal  $\frac{1}{3}$ - $\frac{1}{2}$  of joint 2, sometimes the basal  $\frac{1}{4}$  of joint 3, or of 3-5, and the extreme tip of joint 5, and always the whole of 6-8, except rarely the terminal  $\frac{2}{3}$  of 6, and always the white spot on 7, all black. Venter pale rufous, tip blackish. *Legs* rufous. The 4 front legs with their coxæ and trochanters white, the coxæ occasionally tinged with rufous. Hind legs with the extreme base of the basal trochanters often blackish, the 2d trochanter often whitish below, and the terminal  $\frac{1}{6}$  of the femora black; tibiæ fuscous, their basal  $\frac{1}{6}$  whitish; spurs whitish; tarsi pale fuscous, with the extreme base of joint 1 and sometimes of 2 also, the terminal  $\frac{1}{4}$ - $\frac{1}{2}$  of 2, and the whole of 3 and 4, more or less obviously white or yellowish-white, sometimes entirely fuscous except the extreme base of all the joints. *Wings* subhyaline; veins black; stigma black, its basal  $\frac{1}{4}$  yellowish-white. Radial area short, its posterior angle  $110^{\circ}$  or  $120^{\circ}$ . Areolet almost regularly pentagonal, its outer side usually rather shorter than the inner side, and the 2d recurrent vein often entering it rather nearer its base than its tip. Length ♂ .17-28 inch. Front wing ♂ .13-21 inch.

Fourteen ♂; ♀ unknown to me. A rather variable species. The variation in the coloring of the clypeus is especially remarkable and unusual. Distinct at once from *atricollaris*, n. sp., *rhomboidalis*, n. sp., *cinctipes*, n. sp., *rufifrons*, n. sp., and *semirufus*, Brullé, by the antennæ not being annulate; and from *Cryptus*? (*Ischnus*) *albitarsis*, Cress., and *Cr. nigricollaceatus*, n. sp., by the much less slender abdomen.

To this section belong also *Cr. semirufus*, Brullé (N. Am.), and, if with Brullé we reject the genus *Hoplismenus*, Grav., *H. thoracicus*, ♂, Cress., which differs from all the preceding by having the thorax black, with the scutel and the metathorax rufous.

SECTION 4. *Cresson*.—"Scutellum black; abdomen red, or red and black."

A.—*Antennæ not annulate with white; coxæ and trochanters mostly black.*

*Cryptus americanus*, Cress.—♀—The antennæ are  $\frac{4}{5}$  as long as the body; the 1st joint of the flagellum (= 3d joint of antennæ, *Cress.*)  $5\frac{1}{2}$  times as long as wide, the 2d and 3d joints (= 4th and 5th of antennæ, *Cress.*) each  $\frac{1}{4}$  shorter than the preceding, so that the 3d joint is  $\frac{9}{16}$  or rather more than  $\frac{1}{2}$  as long as the 2d; the rest gradually shorter and shorter. In the metathorax the lateral areas, except their outer sides as well as their cross-carinæ, are distinct; there is a small subquadrate basal area; a large equilaterally obtrigonal central area separated from the posterior area by a robust cross carinæ; and not only do the tips of the lateral areas terminate in an acute thorn, but the outer tips of their cross-carinæ project in a small, robust tooth. The areolet is pentagonal, its inner and outer sides the longest, its anterior side the shortest. The radial area is elongate, having a posterior angle of  $135^\circ$ ; and the 1st recurrent vein is angulated at  $135^\circ$  with a stump of a vein at the angle. Legs black; tips of the 4 front femora, especially the anterior ones, shading into rufous; all 6 tibiæ and tarsi pale fuscous, tinged, especially in the front legs, with rufous. First abdominal joint with its carinæ extending  $\frac{3}{4}$  of the way to the tip. Length ♀ .37 (.25-.50 *Cress.*) inch. Front wing ♀ .30 inch. Ovip. .23 inch.

One ♀; ♂ unknown to me. By some clerical or typographical error the ovipositor in Mr. Cresson's diagnosis is said to be "as long as the body," instead of "as long as the abdomen," as is correctly stated in his description and also on p. 300. Precisely the same error is repeated in the diagnosis of his *Cr. persimilis*. In this species all the tibiæ have an irregular double external row of minute thorns as in several of the following species in *Cr. robustus*, Cress., and in *Phytodietus*, Grav.

*Cryptus persimilis*, Cress.—♀—The antennæ are  $\frac{2}{3}$  as long as the body, the 1st joint of the flagellum (= 3d joint of antennæ, *Cress.*) only  $4\frac{1}{2}$  times as long as wide, the following joints proportioned as in *americanus*. The metathorax differs from that of *americanus* in the basal and central areas being subobsolete except the posterior carina of the latter, and in the cross-carinæ of the lateral areas not projecting laterally in a distinct tooth. Areolet as in *americanus*, except that its anterior side is usually no shorter than either one of the two posterior sides. First recurrent vein usually with a stump of a vein at its angle. Abdomen as in *americanus*, except that the basal  $\frac{2}{3}$  of joint 1 is either entirely or laterally black. Length ♀ .30-.37 (.33 *Cress.*) inch. Front wing ♀ .23-.26 inch. Ovip. .20 inch.

Three ♀; ♂ unknown to me. Two ♀ are smaller, and yet have as long an ovipositor as the larger ♀, and in both these two the 1st abdominal joint is entirely black on its basal  $\frac{2}{3}$  and the 1st recurrent vein has a stump of a vein at its angle, neither of which characters occur in the large ♀.

**Cryptus frater**, Cress.—♀.—The antennæ are rufous, shading into brown-black on the extreme base and tip,  $\frac{4}{5}$  as long as the body; 1st joint of the flagellum 4 times as long as wide, the rest gradually shorter and shorter. The parapsidal grooves of the thorax are distinct and acute but not impressed. The carinæ of the metathorax are obsolete, except the cross-carinæ of the lateral areas, which are continuous with each other, and a trace of their terminal angles. Areolet in a regular pentagon. Radial area very short, its posterior angle about  $100^\circ$ . Length ♀ .20 (27 Cress.) inch. Front wing ♀ .16 inch. Ovip. .03 inch.

One ♀; ♂ unknown to me. The terminal 3 or 4 abdominal joints are in my specimen greatly retracted; otherwise it would measure more in length.

**Cryptus? albisoletus**, n. sp.?—♂.—Black. Head opaque, closely and very finely punctate, subglabrous and polished on the clypeus and especially on the vertex. Clypeus hunched and transversely oval. Palpi very pale rufo-fuscous. Antennæ  $\frac{3}{4}$  as long as the body, very robust, being as stout as the middle tibiæ, brown-black, tinged with rufous beneath at the extreme tip; joints very distinct. Joint 1 of the flagellum twice as long as wide, the rest very slowly shorter and shorter. Thorax with fine, close-set punctures, polished above, where the punctures are finer and more sparse, subopaque beneath; scutel flat; parapsidal grooves distinct and impressed on the anterior  $\frac{1}{3}$ , thereafter suddenly obsolete. Metathorax opaque and rather coarsely rugose; the hind carinæ of the lateral areas distinct and prominent at the angles in a rectangular tooth, their cross-carinæ also indistinctly present; posterior area large and pentagonal; the other areas obsolete. Abdomen rufous, oval,  $4\frac{1}{2}$  times as long as wide, subpolished, with almost microscopic, rather sparse punctures. First joint thrice as long as wide, thrice as wide at tip as at base, its sides straight and slightly divergent  $\frac{2}{3}$  of the way to the tip, where the large rectangular tubercles are placed, thence subconvex and subparallel. Joint 2 wider by  $\frac{1}{3}$  than long, and twice as wide behind as before; the rest rapidly shorter and shorter. Joint 3 with a subobsolete, transverse, medial, capillary, dark line; 5-8 obfuscated, and 7 almost entirely covered by a whitish spot. Venter rufous, the tip as well as the penis dusky. Legs pale rufous. The basal trochanters in all 6 legs and the 4 hind coxæ black; middle tibiæ faintly, hind tibiæ strongly, obfuscated; 4 hind tarsi white, with the basal  $\frac{2}{3}$  of joint 1, and the whole of 5, pale fuscous. Wings subhyaline; veins black, stigma dusky. Radial area short, its posterior angle  $120^\circ$ . Areolet in a regular pentagon. Length ♂ .25 inch. Front wing ♂ .18 inch.

One ♂ ; ♀ unknown to me. Very near *Cr. albitarsis*, ♂ Cress., but that species is said to have "rather slender" antennæ, basally "rufous beneath" (not brown-black), and "all the coxæ and trochanters except the apical half of the posterior pair [of trochanters] black"; whereas in *albisoletus* the 2 anterior coxæ are entirely rufous, the 4 posterior ones entirely black, and all the 6 terminal trochanters are distinctly rufous. The two may possibly be identical; but if so Mr. Cresson has made some poor describing. In any case, if *Ischnus albitarsis*, ♂, Cress., be, as I suppose, a *Cryptus*, the specific name *albitarsis* will be here pre-occupied. Distinct from all the preceding by the white tarsi.

[*Cryptus albitarsis*, Cress., and *albisoletus*., Walsh, although closely allied, are two very distinct species; the former, which I now consider to be the ♂ of *similis*, Cress., has a longer and more slender antennæ, black anterior coxæ and trochanters, a flat scutellum (which is convex in *albisoletus*), a differently sculptured metathorax, and the apex of first abdominal segment prominently nodose.—CRESSON.]

**Cryptus** [*limatus*, Cress.]—♂.—Differs from *albisoletus*, ♂, n. sp.? only as follows:—1. The clypeus and vertex are punctate and opaque, and the palpi are white except the last 2 joints which in certain lights are tinged with fuscous. 2. The antennæ are immaculate, a little less robust, joint 1 of the flagellum being almost  $2\frac{1}{2}$  times as long as wide. 3. The thorax is subopaque and uniformly sculptured above and below; the parapsidal grooves are distinct, and impressed on the anterior  $\frac{2}{3}$  (not  $\frac{1}{3}$ ); and the central area of the metathorax is quadrate and distinct except that it is confluent behind with the posterior area. 4. The 1st abdominal joint is 4 times as long as wide, and only twice as wide at tip as at base; its sides parallel  $\frac{3}{4}$  of the way to the tip, where the tubercles are located and there is a sudden expansion, thence nearly straight and subparallel or scarcely divergent. Joint 2 as long as wide, and about  $2\frac{1}{2}$  times as wide behind as before. A subterminal, capillary, dark line on joint 3, and a medial one on 4. Basal  $\frac{1}{4}$ – $\frac{1}{2}$  of joint 1 blackish; elsewhere the abdomen and venter are rufous-immaculate. 5. The legs are pale rufous. All the coxæ and trochanters, basal  $\frac{1}{4}$ – $\frac{1}{3}$  of the front femora, all but the knees in the middle femora, and the whole of the hind femora, tibiæ, and spurs, black. All 6 tarsi white, the basal  $\frac{1}{2}$  of joint 1 in the hind legs, and the whole of joint 5 in all 6 legs, black. 6. The stigma is dull rufous edged with black. Areolet pentagonal, with its inner and outer sides parallel and its 2 hind sides each about  $\frac{1}{4}$  shorter than the other 3 which are subequal. Length ♂ .30 inch. Front wing ♂ .25 inch.

Two ♂ ; ♀ unknown to me. Distinct at once from *Cr. albitarsis*, ♂, Cress., and *albisoletus*, ♂, n. sp., by the subopaque mesonotum with unabbreviated parapsidal grooves, and by the

more or less black femora; and from all the other preceding species belonging to this group by the white tarsi.

**Cryptus albicaligatus**, n. sp.—♂.—Differs from *albisoleatus*, ♂, n. sp., only as follows:—1. The clypeus and vertex are punctate and opaque, and the palpi are white except the last joint which is fuscous in all lights. 2. The antennæ are  $\frac{3}{4}$  as long as the body, immaculate and much less robust, joint 3 being thrice (not twice) as long as wide. 3. The thorax is uniformly and rather coarsely punctate; the parapsidal grooves shallow but pretty distinct on the anterior  $\frac{1}{2}$ , and in addition there is a shallow median groove nearly attaining the scutellar fovea. Metanotum very coarsely rugose; the hind angles of the lateral areas turned vertically upwards in a blunt tooth; their cross carinæ distinct and in range with the front carina of the central area, which is obscurely defined, twice as long as wide, constricted in the middle, and confluent with the posterior area. Basal area transverse; posterior area indistinct. 5. The abdomen is elongate-oval,  $6\frac{1}{2}$  times as long as wide; the 1st joint 6 times as long as wide, scarcely wider at tip than at base, the spiracle placed  $\frac{2}{3}$  of the way to the tip, but without any tubercles, so that, except a slight inflation at the extreme tip, and the usual slight dilatation at the extreme base, the joint is linear. Joint 2 longer by  $\frac{1}{2}$  than wide, and  $2\frac{1}{2}$  times wider at tip than at base; 3 square; the rest slowly shorter and shorter. Basal  $\frac{1}{3}$  of joint 1 black; the rest of the abdomen, as well as the venter, rufous. 5. The legs are black. In the 4 front legs the knees and tibiæ, except the inside of the tibiæ which is rufous, are white; and in all 6 legs the tarsi are white with joint 5 dusky, and in the hind tarsi the basal  $\frac{2}{3}$  of joint 1 is black. 6. The wings are tinged with smoky yellow. Radial area long, its posterior angle  $135^\circ$  with its apex not in the least rounded off and abutting on the outer side of the areolet. Areolet pentagonal; its inner and outer sides parallel or scarcely convergent in front; its inner side equal to its anterior side, and the 3 other sides  $\frac{1}{4}$  shorter and subequal. Length ♂ .46 inch. Front wing ♂ about .30 inch.

One ♂; ♀ unknown to me. Distinct from all the other ♂♂ belonging to this section by the elongate, linear 1st abdominal joint, and from all the ♀♀ by its conspicuous white tarsi. Very like *Cryptus (Ischnus) albitarsis*, ♂, Cress., at first sight, but distinct by its black face, tegulæ, thorax, coxæ, and trochanters.

[Doubtless a mere variety of *albitarsis*.—CRESSON.]

**Cryptus plecticoxus**, n. sp.—♂.—Black. Head subopaque, densely and very finely punctate. Orbits, very wide next the mouth, slender above and behind, and interrupted behind as they approach the cheeks, clypeus except its extreme tip and a large quadrate spot immediately above it and almost confluent with the facial orbits, mandibles except their teeth and palpi, all white. Antennæ rather robust,  $\frac{3}{4}$  as long as the body, brown-black with a white spot on the 1st joint below; 1st joint of flagellum  $2\frac{1}{2}$



times as long as wide; the 2d joint  $\frac{1}{4}$  shorter; the rest very slowly shorter and shorter. *Thorax* opaque, finely and confluent punctured, less so on the mesonotum which is subpolished. Parapsidal grooves acute and impressed on the anterior  $\frac{2}{3}$ , with a subobsolete dorsal stria between them. Metathorax with the lips and the cross-carinæ of its lateral areas distinct; the central area large and pentagonal, with its sides indistinct, and confluent behind with the posterior area; the basal area obsolete. Tegulæ, and a short line under the front wing, white. *Abdomen* rufous with the basal  $\frac{1}{4}$  of joint 1 black, elongate-oval, about 7 times as long as wide, subpolished and almost microscopically sculptured. Joint 1 rather robust, twice as long as wide,  $\frac{1}{2}$  wider at tip than at the extreme base, its sides gently concave  $\frac{2}{3}$  of the way to the tip where the spiraculiferous tubercles are placed, thence subparallel. Joint 2 longer by  $\frac{1}{2}$  than wide, and  $\frac{3}{4}$  wider at tip than at base; 3 scarcely longer than wide; the rest gradually shorter and shorter. Venter rufous; veins black. *Legs* rufous. The 4 front legs with their knees white, and their coxæ and basal trochanters white below and black above; the 2d trochanter in the front legs white below. Hind legs with their coxæ, the whole of their basal trochanters, and the base of their second ones, black; and the tip of the tibiæ and the entire tarsi fuscous. *Wings* subhyaline, tinged with smoky yellow; veins and stigma black; radial area elongate, its posterior angle  $135^{\circ}$ . Areolet with its inner and outer sides the longest, and its anterior side  $\frac{1}{3}$  shorter, the 2 posterior sides subequal and of intermediate length. First recurrent vein angulated at  $135^{\circ}$ , with a stump of a vein at the angle; second recurrent vein distinctly angulated. Length ♂ .36 inch. Front wing ♂ .26 inch.

One ♂; ♀ unknown to me. Might be taken for the ♂ of *persimilis*, Cress., but for the white (not dark) mandibles, palpi and tegulæ, the coloration of which parts is not a sexual character in this family. Moreover, the antennæ are proportionally too stout and the abdomen too slender. The same characters separate it from the other ♀♀ belonging to this group, and from the ♂♂ it is separated at once by the presence of white markings on the head and the absence of them on the tarsi. The ornamentation of the coxæ and trochanters is very like that of *Cr. (Ischnus) albitarsis*, Cress., which belongs to Section 3, but the abdomen is not near so slender.

B.—*Antennæ not annulate with white. Coxæ and trochanters not marked at all with black.*

*Cryptus ultimus*, Cress.—♀.—The head is subopaque and very minutely and closely punctate. The 1st joint of the flagellum is 4 times as long as wide, with its membranous base rufous; the 2d joint  $\frac{1}{4}$  shorter; the rest gradually shorter and shorter. The parapsidal grooves of the thorax

are acute but not impressed, and the metathoracic areas are all indistinctly present, the central area large and pentagonal, and the tips of the lateral areas acute but not thorn-like. In the areolet the inner and outer sides scarcely converge in front, and the outer side and that next the discoidal cell are shorter by  $\frac{1}{4}$  than the other 3, which are equal. Radial area short, its posterior angle about  $120^{\circ}$ . First recurrent vein very obtusely angulated. First joint of the abdomen  $2\frac{1}{4}$  times as long as wide,  $2\frac{1}{2}$  times as wide at tip as at the extreme base, gradually dilated from near the base to the extreme tip, the spiracles not tuberculiform. Joint 2 as long as wide, and twice as wide behind as before; 3 full twice as wide as long; 4 shorter and entirely black; the rest greatly retracted, but the normal white spot on 7 very plain. Length ♀ .23 (.33 Cress.) Front wing ♀ .18 inch.

One ♀; ♂ unknown to me. Mr. Cresson describes the 1st and 2d joints of the flagellum (= 3d and 4th of antennæ) as subequal; but this can scarcely be so in a *Cryptus*.\* His single specimen was from Colorado. But for the retraction of the terminal joints of the abdomen, my specimen would measure more in length.

#### GENUS BASSUS, Grav.

In this genus the coloration and size appears to be pretty constant, the only variations of any consequence occurring in the lateral spottings of the abdomen and in the size of the facial white spot of ♀. The hooked or clavate spot overlying (not underlying) the humeral suture is very characteristic of *Bassus*, though it occurs also in a few other genera, e.g. *Lampronota* and *Tryphon*. The bullæ A and B are represented in the first Section by two faint semibullæ in the 2d cubital cell, one at its upper corner, and one at the point where the 2d recurrent vein joins it; and, as C and D are confluent, there are in the first Section two complete bullæ only, CD and E. In the second Section A is absent, B distinct, and C and D confluent as in the first Section; and here there are consequently three bullæ, B, CD, and E. In both Sections E is remarkable for being located very close to the angle of the 1st recurrent vein.

#### SECTION I.—Arolet obsolete.

**Bassus** [*scutellaris*, Cress., Trans. Am. Ent. Soc. ii. p. 112].—♀.—Black. *Head* subopaque, finely and rather densely punctured, subglabrous and polished on the vertex and clypeus. Orbits from the vertex to the clypeus, a roundish spot of very variable size on the middle of the face, and

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\* The first and second joints of the flagellum (= third and fourth of antennæ) are, I find, equal or subequal in length in nearly all the species of *Cryptus* known to me; therefore Mr. Walsh could not have really meant what he has written.—CRESSON.

the clypeus, mandibles except their teeth, and palpi, all white. Clypeus subtruncate at tip, its anterior edge reflexed and emarginate in the middle so as to appear bilobate. Antennæ  $\frac{4}{5}$  as long as the body, brown-black, beneath dull rufous except the 1st joint; 1st joint of flagellum thrice as long as wide. *Thorax* finely and rather sparsely punctate and polished. The tegulæ, a short line beneath the front wing, a spot before it, and a short subclavate line adjoining the humeral suture above, all three of them almost contiguous, a large subquadrangular spot on the scutellum and a transverse line behind it, all white. Metathorax finely rugose with the carinæ well defined, the basal area absent, the central area quadrate and confluent with the posterior area and the cross-carinæ of the lateral areas absent. Meso- and meta-sternum pale rufous. First joint of the *abdomen* rugose, with two very distinct longitudinal carinæ obsolete towards the tip, and a transverse white line on the middle  $\frac{1}{3}$  of its terminal edge, the outer  $\frac{1}{6}$  of that edge elevated into a glabrous, highly polished carinal ridge. Joints 2-4 rugoso-punctate, each gradually less so, 1-3 with a transverse stria behind the middle. 4 with one before the middle, all filled with short, parallel, longitudinal rugæ which are coarser on joint 1; the remaining joints more and more glabrous and polished; 2-7 each with a very narrow terminal whitish or pale rufous line. Venter blackish, irregularly blotched with white. *Legs* pale rufous, the anterior coxæ and trochanters white; the anterior surface of the 4 front legs, especially at the knees, whitish; the extreme tip of the hind femora and the whole of the hind tarsi brown-black; hind tibiæ with the basal  $\frac{1}{2}$  and terminal  $\frac{2}{3}$  black, the intervening  $\frac{1}{3}$  white. *Wings* hyaline; veins black; radius pale rufous; stigma black but basally whitish, and twice as long as wide.

♂ Differs from ♀ in the entire face and the basal joint of the antennæ below being white, and in the tips of abdominal joints 2 and 3 being sometimes marked laterally with a distinct, transverse, white spot. Length ♂ 19-.22 inch; ♀ .21-.27 inch. Front wing ♂ .22 inch; ♀ .22-.25 inch.

Two ♂, three ♀. Comes very near to the *B. maculifrons*. Cress., the ♀ only of which is described; but ♀ differs in the metathoracic carinæ being very distinct, instead of absent, in the hind tibiæ being annulate with white, and in the abdomen not being laterally spotted. From *B. orbitalis*, Cress. (♀ only described) ♀ differs in having a white spot on the face, in having no white spot on the pleura behind the anterior coxæ, in abdominal joint 2 not being crenulate basally, and in abdominal joints 2-4, instead of 1-3, being transversely striate. From both species it differs in the antennæ being longer and rufous beneath, and in the pectus being rufous, not black. The three species referred to *Bassus* by Say, evidently from the long ovipositor, do not belong here, and are probably *Braconidæ*.

***Bassus tripecticus***, n. sp.—♂ ♀—Differ from the ♂ ♀ of the above only as follows:—1. The meso- and meta-sternum are black, not rufous. 2.

The abdomen is dorsally black with the extreme tip of joint 1, and the whole of joints 2 and 3 rufous, and ventrally black with joints 1-3 obscure rufous. 3. The hind femora are immaculate. 4. The hind tibiæ have their basal  $\frac{1}{2}$  black, their next  $\frac{2}{3}$  white, their next  $\frac{1}{3}$  black gradually shading into the terminal  $\frac{1}{3}$  which is bright rufous, thus presenting three distinct colors, whence the specific name. The ♀ differs also in having no facial white spot from the ♀ of [*scutellaris*, Cress.] Length ♂ .20 inch; ♀ 21-.27 inch. Length wing ♂ .19 inch; ♀ .19-25 inch.

One ♂, four ♀. Separated at once from Mr. Cresson's two species, and from [*scutellaris*, Cress.,] by the broad red band on the abdomen and by the remarkable coloration of the hind tibiæ.

[This is probably only a variety of *sycophanta*.—CRESSON.]

**Bassus sycophanta**, Walsh, [Trans. Am. Ent. Soc. ii. p. 112].—♀.—Differs from [*scutellaris*, Cress.] ♀ only as follows:—1. The white spot is not located on the disk of the face, but on its tip so as to connect with the clypeus; and the orbits widen as they approach the clypeus so as to be more or less confluent with the white spot. 2. The antennæ are brown-black immaculate. 3. Besides the described white markings of the thorax, an abbreviated line on the front submargin of the mesothoracic pleura, a line on the front submargin of the lower surface of the mesosternum, which is prolonged backwards at right angles half way to the metasternum, and a short line in the suture under the hind wing, all white. And the posterior declivity of the metathorax is generally tinged with rufous, the rest of the thorax being black. 4. The carinæ of the 1st joint of the abdomen are less distinct, and fade out half way to the tip. Joints 1-3, and sometimes the base of 4, are rufous immaculate, the rest of the abdomen black. Venter basally dull rufous, terminally blackish. 5. The hind femora are immaculate, and the hind tibiæ have their basal  $\frac{1}{2}$  black, their next  $\frac{2}{3}$  white, their next  $\frac{1}{3}$  black, gradually shading into the last  $\frac{1}{3}$  which is bright rufous. Length ♀ .21-25 inch. Front wing ♀ .19-22 inch.

Three ♀; the ♂, which is unknown to me, will no doubt have a white face and the first joint of the antennæ white below. Remarkably like *tripicticus* ♀, n. sp., but differs by the white spot on the face, by the white lines on the sternum, and by the 1st joint of the abdomen being rufous immaculate and having its carinæ less strongly developed. Any one of these characters might, if it stood alone, be attributed to variation; but as the three are persistent throughout, they manifestly are of specific value. The hind legs are exactly like those of *tripicticus*, and the species is separated from others by the same characters as *tripicticus*.

**Bassus rufiterus**, n. sp.—♂.—Face with a large oblong spot in the middle which extends to the clypeus, and the clypeus, mandibles, and palpi, all yellowish-white. Clypeus semicircularly emarginate at tip. Antennæ  $\frac{4}{5}$  as long as the body, brown-black, scarcely paler beneath, the 1st joint

stained with yellow beneath. *Thorax* subglabrous, polished, with the tegulæ, a short line below the front wing, a short line tapered to a point in front adjoining the humeral suture below, and a large elongate spot, clavate and hooked backwards at tip, adjoining it above, all three spots contiguous, and an elongate spot in front of the middle coxa, pale yellow. Metathorax finely rugose with the carinæ subobsolete. *Abdomen* with the whole of the 1st and the basal half of the 2d joint finely rugose or almost glabrous, the normal carinæ of joint 1 only indicated by a slight but broad depression fading out before it attains the tip, which tip on each side is furnished with a polished, transverse, short carina or tubercle. The rest of the abdomen is subglabrous and polished. No transverse carinæ except on joint 3, and even there it is indistinct. The terminal  $\frac{1}{3}$  of joint 2 and the whole of joint 3 rufous. Venter basally rufous, towards the tip blackish. *Legs* pale rufous, the coxæ and trochanters of all 6 yellowish-white. *Wings* hyaline, veins and stigma black, the stigma but slightly paler at base and about twice as long as wide. Length ♂ .18 inch. Wing ♂ .19 inch.

One ♂ ; ♀ unknown to me. Sufficiently distinct from all but the preceding two species by the red-banded abdomen, and from those by the immaculate hind tibiæ and scutel, and the nearly smooth metathorax and 1st abdominal joint.

#### SECTION 2.—Areolet present.

**Bassus semifasciatus**, n. sp.—♂.—Black. *Head* subopaque, with very minute, close-set, shallow punctures, more sparse on the vertex. Clypeus describing a circular arc, posteriorly of  $90^\circ$  with the foveæ, as usual, placed in the suture,  $\frac{1}{4}$  of the way from the outer angle, anteriorly of  $30^\circ$  with the middle  $\frac{1}{3}$  of the arc reflexed. Face except the terminal foveæ, broad orbits almost reaching the vertex, clypeus, mandibles except their teeth, and palpi, all yellowish-white. Antennæ  $\frac{4}{5}$  as long as the body, brown-black, the flagellum tinged with rufous beneath, and its first joint with white; the scape yellowish, white beneath. First joint of flagellum 4 times as long as wide. *Thorax* polished, with very minute, but not close-set, shallow punctures. Metathorax more coarsely rugoso-punctate, subopaque, and with the lateral carinate areas distinct, but without any cross-carinæ. Tegulæ, a line under the front wing, a quadrate spot before the tegula under the humeral suture, a broad line clavate and slightly hooked backwards at tip overlying the humeral suture nearly to its tip, all three of these spots contiguous, the scutel and a short transverse line behind it, the entire prosternum, the anterior margin of the mesosternum nearly up to the wing, an unabbreviated vitta near the bottom of its pleura and another which is abbreviated behind still lower down, and the anterior margin of the metasternum up to the wing, all white. *Abdomen* narrower and less flattened than usual, subopaque on joints 1-4, with confluent fine punctures obsolete towards the tip, and the tips of the joints which are subpolished. Joint 1 longer by  $\frac{1}{2}$  than wide, with a lateral, spiraculiferous

tubercle placed  $\frac{1}{3}$  of the way to its tip, and very large and prominent; the 2 usual carinæ reaching  $\frac{2}{3}$  of the way to its tip. Joint 2 with a round fovea in its anterior angle. Joints 2 and 3, with a subobsolete transverse, medial stria widely interrupted on the dorsum. Joint 1 with a narrow, terminal white line; 2-6 with a white fascia on their terminal  $\frac{1}{4}$ , very narrowly interrupted above on 2, but more and more widely so in each successive joint, till in 6 it is reduced to a mere lateral white dot. Venter yellowish-white. Four front *legs* very pale rufous, hind legs pale rufous; all the coxæ and trochanters white; tips of the 4 front tarsi, and the whole of the hind tarsi fuscous. *Wings* hyaline; veins black, radius whitish; stigma black, whitish at base, twice as long as wide. Bullæ indistinct, the wings being in bad order. Length ♂ .19 inch. Front wing ♂ .16 inch.

One ♂; ♀ unknown to me. Very near *maculifrons*, Cress. (♀ only described), and may possibly be the other sex of that species. Differs by its white face and orbits, and by the legs being more marked with white, which are common sexual characters in ♂ *Ichneumonidæ*; and also in the pale markings of the sternum and abdomen, which may possibly be also sexual characters. The clypeus, however, is not "profoundly impressed on each side," unless by this phrase is meant the usual foveæ, which are located, as in all *Ichneumonidæ*, in the clypeal suture; neither is its "basal margin prominent," nor is the metathorax "without elevated lines."

**Bassus bicapillaris**, n. sp.—♂.—Black. *Head* with the clypeus piceorufous and truncate at tip, its anterior edge reflexed and in the middle slightly depressed and emarginate. Mandibles and palpi white. Antennæ  $\frac{4}{5}$  as long as the body. *Thorax* very finely and regularly punctate so as to appear subglabrous and polished. Tegulæ, a short line beneath the front wing, a roundish spot before it, and a subclavate line adjoining the humeral suture above, all three of them nearly contiguous, white. Scutel rufous. A capillary white line extending in a semicircle from the front of the base of one hind wing behind the scutel to the front of the base of the other one, and a similar line parallel with the first and extending from the back of the base of one hind wing to the back of the base of the other one. *Abdomen* with joints 1-3 rugoso-punctate, each gradually less so, the remaining joints gradually almost glabrous and polished. No transverse striæ. Joint 1 with a wide, flattish, subglabrous, longitudinal carina bifurcating in front, and a narrow, acute, sublateral one terminating in a small, glabrous tubercle at each hind angle. Joint 2 with similar carinæ, fading away at the middle. Venter blackish. *Legs* pale rufous. Hind trochanters white. Terminal  $\frac{1}{4}$  of hind femora, and whole of hind tarsi, black. Hind tibiæ black, with their basal  $\frac{1}{3}$  white. *Wings* hyaline; veins black, paler on the postcosta; the radius whitish; stigma black, 3 times as

long as wide, and with its basal  $\frac{1}{3}$  whitish. Areolet peduncled, obliquely oblong and twice as long as wide. Length ♂ .21 inch. Front wing ♂ .20 inch.

One ♂ ; ♀ unknown to me. Sufficiently distinct from all described N. A. *Bassus* by the areolet, and by the capillary white lines on the metathorax, whence the specific name.

CATOCENTRUS, new genus.

*Head* transverse, scarcely wider than the thorax. Face with a large, transversely oval tubercle on its disk, declivous above, gradually sloped elsewhere, and projecting forwards beyond the line of the eyes about  $\frac{2}{3}$  their shorter diameter. Cheeks not at all inflated. Antennæ with the 1st joint of the scapus as large as usual, truncate a little obliquely from above downwards, the 2d joint not larger than usual; the 1st joint of the flagellum rather long, the following joints all longer than wide except towards the tip. *Thorax* much prolonged beyond the wings (as in *Metopius*) so that the front wings are set on a little behind the middle; parapsidal grooves usually obsolete. Scutel rounded, with a very deep and wide transverse stria at its base. *Abdomen* sessile, curved downwards, subclavate, with joints 2-6 constricted at base (as in *Metopius*), and only joints 1-6 visible from above or behind, 7 and 8 being telescopically retracted (as in *Metopius*), and only seen from below. Joint 1 short and but slightly longer than wide, and very slightly wider behind than before. Ovipositor and its sheaths very short, generally exerted and directed perpendicularly downwards. Venter as much excavated as in *Pimpla*, so that the ventral and dorsal integuments are contiguous. *Legs* short, rather robust; hind tarsi much shorter than their tibiæ; front and middle tarsi a trifle longer than their tibiæ. Spurs normal. Tarsal claws unarmed, short and robust, shorter than the pulvillus. *Wings* pretty long, with a moderately long radial area, and usually with a small, rhomboido-triangular areolet, the 2d recurrent vein usually more or less triangulated; the 1st recurrent vein not angulated, but curved near its base. Bullæ 5, A indistinct and sometimes subobsolete, placed on the anterior angle of the areolet; B normal; C and D separated by the salient angle of the 2d recurrent vein; and E rather closer to the curve of its vein than to the areolet.



Closely allied to *Metopius* both in coloration and structure, but differs by the facial swelling not being buckler-shaped nor acutely declivous all round, by the rounded scutel, by the small areolet, by the 2d recurrent vein being more or less biangulated instead of perfectly straight, and by bullæ C and D being distinctly separated. Allied to *Exochus*, Grav., *Polyrhabdus*, n. g., and *Orthocentrus*, Grav., by the facial swelling; but differs by the cheeks not being at all inflated, by the front wings being set on behind the middle of the thorax, by the constricted abdomen, and by many other characters. Gravenhorst, in his description of the genus *Orthocentrus*, has said that the ovipositor is erect (*erectus*), by which, of course, he means that it is directed upwards, or exactly the reverse to that of *Catocentrus*. Brullé has made the ridiculous mistake of translating "erectus" by the French word "droite" (straight), thus confounding "erectus" and "rectus" (*Hym.* p. 115). The position of the ovipositor, whether erect or oblique, or pointed downwards, is, however, sufficiently indefinite and variable character by which to define a genus; for I find that in different specimens of one and the same species (e.g. *Cylloceria [occidentalis]*, Cress.) the ovipositor is sometimes directed straight upwards, owing to the retraction of the terminal dorsal joints, sometimes directed obliquely backwards in the usual manner.

***Catocentrus philanthoides***, Walsh [Trans. Am. Ent. Soc. ii. p. 110]. —♂♀.—Black. *Head* with the vertex subglabrous and polished; front and face closely and finely punctate; the face bearing on its disk two large, roundish, subcontiguous, yellow spots, transversely arranged. Clypeus truncate and rather coarsely rugose. Mandibles and palpi piceous. Antennæ  $\frac{2}{3}$  as long as the body, brown-black, the flagellum beneath dull rufous, and the 1st joint of the scapus laterally and beneath yellow. *Thorax* subpolished, finely and closely punctate, the punctures finer and more sparse beneath. Metathorax with the two carinate lateral areas distinct and divided each by cross-carinæ. The other areas obsolete. Under the tip of each humeral suture a triangular yellow spot. Scutel with a large, subquadrangular, yellow spot, rather wider in front than behind, and with its four angles, especially the front ones, considerably prolonged; a transverse yellow line behind this spot. *Abdomen* basally truncate; the angles acute and a little prolonged; joint 1 oblong and flattened, ♂  $\frac{1}{4}$  and ♀  $\frac{1}{5}$  longer than wide, ♂  $\frac{1}{5}$  and ♀  $\frac{1}{4}$  wider behind than before, laterally a little concave, the concavity greatest  $\frac{1}{3}$  of the way to the tip; the usual two carinæ well developed on it but fading out towards its hind edge; the joint itself glabrous and polished between these carinæ, elsewhere slightly rugoso-punctate and polished; its terminal  $\frac{1}{3}$  yellow. Joints 2-5 finely and

densely punctured, slightly shining, the terminal  $\frac{1}{2}$  of each yellow. The remaining joints, so far as visible, less punctured. Venter stained with yellow. *Legs* with the 6 trochanters ♂ yellow, ♀ stained with yellow; ♂ ♀ with the 4 front tibiæ, the 4 front tarsi except their extreme tips, the basal  $\frac{3}{4}$  of the hind tibiæ and the tips of all 6 femora, all yellow. *Wings* hyaline, with a brown-black cloud along the costa fading out half way across the wing and darkest towards the tip; veins black; stigma dark rufous, subhyaline only at its extreme base, and thrice as long as wide. *Areolet* almost rhomboido-triangular, the 2d recurrent vein entering it  $\frac{3}{4}$  of the way to its tip. Length ♂ ♀ .30 inch. Wing ♂ ♀ .27 inch.

One ♂, two ♀, taken on umbelliferous flowers in August. May be readily mistaken for a small *Philanthus* or *Cerceris*.

GENUS METOPIUS, Grav. (= *Peltastes*, Illig.)

But three bullæ exist in this genus, B, CD, & E, and they are all smaller than usual, though very distinct. Their location is normal. Most of the yellow markings seem to be here very variable in their extent, and some of them to be occasionally obsolete. In the European *M. necatorius*, for example, we are told that the yellow band at the tip of the 1st abdominal joint sometimes almost entirely covers that joint, and in Brullé's description of his *M. pinatorius* that the 7th abdominal joint has sometimes no terminal yellow border. (Brullé *Hym.* p. 120.)

*Metopius* (*peltastes*) *pollinctorius*, Say (= *M. pinatorius*, Brullé, = *M. cordiger*, Brullé).

From Brullé's slovenly descriptions of his *M. pinatorius* and *M. cordiger*, and of their distinctive characters, I have compiled with some labor the following Table, omitting those points which he quotes as distinctive characters, but in which, according to his own descriptions, the two insects are not distinguishable. For example, he first says that the two yellow spots on the metathorax of *pinatorius* "are sometimes absent," and then he adds, only five lines afterwards, that it "has no yellow spots there at all"!! And, after such a blunder as this, he quotes the presence of two large yellow spots on the metathorax as one of the characters which separate *cordiger* from *pinatorius*!!! For the sake of comparison I have also included in the same Table Say's *M. pollinctorius*, 1st. from his description, and 2d. from a single ♀ specimen in my Cabinet.

	<i>M. cordiger</i> , Br. ♂.	<i>M. pinatorius</i> , Br. ♂.	<i>M. pollinatorius</i> , Say ♂ ♀.	<i>My</i> ♀.
Length.....	.70 inch.	.67 inch.	♂ .43, ♀ .70 inch.	.70 inch.
Central area of metathorax.....	Obsolete?	Cordiform.	* * *	Cordiform.
Yellow spots on each metathoracic flank.....	One, linear.	One? larger?	♂ One, ♀ none.	None.
2d abd. joint at tip	A narrow yellow band medially interrupted.	Two yellow dots	Hind angles obscurely yellow.	Black.
6th abd. joint.....	All black.	Tipped with yellow.	All black.	All black.
4 anterior femora.	Black behind and below.	Partly black behind.	Black behind.	All black except at extreme base.
2 anterior tibiae...	do. do. do.	Black behind?	Yellow immaculate.	Black behind & on the terminal $\frac{1}{2}$ in front also.
2 middle tibiae..	do. do. do.	do. do. do?	do. do. do.	All black.

Hence it is, I think, sufficiently evident that the three supposed species are identical, inasmuch as intermediate grades occur in almost all the distinctive characters, and those characters are such as often vary in allied genera. We find, for instance, very similar variations in *Ichneumon Comes*, Cress., which sometimes has the metathorax all black, sometimes almost entirely yellow, and the 2d and 3d abdominal joints sometimes almost entirely black, sometimes almost entirely yellow, with all the possible gradations from one form to another. Brullé says himself, that in Bosc's original collection, from which he derived all his specimens, his two supposed species were labelled as identical. Of course, Say's name (1836) takes precedence of Brullé's (1846). As the head of Say's unique specimen of ♀ *pollinatorius* was lost, it may be well to add here that the ♀ agrees with his description of the ♂ head. *Rufipes*, Cress., and *pulchellus*, Cress., are sufficiently distinguished from *pollinatorius*, Say, by numerous characters.

A ♂ specimen of *necatorius* (England) differs from *pollinatorius* ♂, as described by Say, in having the entire facial shield yellow, not merely its "lateral and basal margins" and in the entire antenna being luteous beneath, instead of the basal joint only being "whitish." The hind tibiae are also "yellow," as noticed by Say, instead of black. The distinction that Brullé lays down, viz. that the hind femora of *necatorius* are "black below" and those of his *pinatorius* "black at tip," does not hold good with this ♂,

as the hind femora are as Say describes those of his *pollinctorius*, "yellow at base" and black at tip. As in Say's *pollinctorius* ♂♀ (but not in my ♀), the 2d abdominal joint has a lateral yellow spot at tip; but the entire metathorax is black immaculate. As compared with my ♀, the abdomen is more strongly sculptured, so as to be opaque instead of subpolished.

#### GENUS EXOCHUS, Gravenhorst.

Gravenhorst has placed the group to which this genus appertains between the groups *Ichneumon* and *Trogus*, which, as Brullé has well observed (p. 298), are too closely allied to be thus separated, and with which it seems to have no other analogy than the possession of a very short ovipositor. Its abdomen indeed is as sessile as that of any *Pimpla* (though there is a very considerable difference in different species in the basal breadth of its first joint), and it is scarcely correct to call it, as Gravenhorst does, subsessile. The protuberant face shows its connection with *Metopius*, and in fact most of the Pimploid genera have a more or less prominent tubercle on the face, which in some species, e.g. *Glypta tuberculifrons*, n. sp., is very prominent. My species show a considerable difference in the comparative length and breadth of the first joint of the flagellum, and consequently in that of the succeeding joints also, the first joint being in *lævis* ♀ and *albiceps* ♂ only twice as long as wide; in *albifrons* ♀, *annulicrus* ♂, and *atriceps* ♂,  $2\frac{1}{2}$  times as long as wide; and in *albifrons* ♂  $3\frac{1}{2}$  times as long as wide. There is a similar difference in the incrassation of the hind femora, which in *lævis* ♀ are only twice as long as wide, in *atriceps* ♂  $2\frac{1}{2}$  times, and in the other three species  $2\frac{1}{2}$  times as long as wide. In this genus there are but three bullæ, A, CD, and E; A indistinct and sometimes obsolete on the forward end of the areolar cross-vein, CD located well forwards on its vein, and E rather nearer to the angle than to the tip of its vein. Judging from the single species of which I possess many specimens, the size and coloration are both pretty constant.

SECTION 2, *Cresson*.—Areolet obsolete.

*Exochus lævis*, Cress.—♀.—*Head* opaque, with confluent, rather fine punctures and pubescence on the face, the punctures finer and more sparse on the subpolished vertex. *Face*, when viewed in profile, projecting beyond the eyes by a distance equal to their shorter diameter. *Clypeus* glabrous and polished. *Mandibles* and the upper edge of the face rufous. *Palpi* yellowish-white. *Antennæ*  $\frac{3}{5}$  as long as the body, brown-black,

with the flagellum very robust except at the tip and at the extreme base more or less tinged with rufous beneath, their tips a little convolute, the 1st joint of the flagellum twice as long as wide, all the following joints shorter than wide. *Thorax* subpolished, with fine, rather close-set punctures, more sparse on the metathoracic pleura. Metathorax with 4 equidistant longitudinal carinæ, which all attain the lunate area of the posterior declivity, the 2 outer ones medially connected with each other by a cross carina, and the two middle ones forming a central area scarcely closed at tip and twice as long as wide, which, as well as the lower part of the metathoracic pleura, is glabrous and highly polished. Tegulæ yellowish-white. *Abdomen* as long as the head and thorax together, polished, with very fine, moderately dense punctures. Joint 1 longer by  $\frac{1}{3}$  than wide, and nearly thrice as wide behind as before; its 2 carinæ extending more or less distinctly  $\frac{1}{3}$  of the way to the tip, the space between them glabrous but not excavated except sometimes slightly towards their tip. Ovipositor rufous, seldom exerted. *Legs* bright rufous, immaculate. *Wings* hyaline; veins and stigma black. Areolar cross-vein full as long as usual. Length ♀ .20-25 inch. Front wing ♀ .16-18 inch.

Six ♀, two with the ovipositor exerted; ♂ unknown. Judging from analogy, I should anticipate that the entire face of ♂ would be rufous. Differs from Mr. Cresson's description in the palpi being whitish (not "piceous") in the rufous band on the face, in the antennæ being  $\frac{3}{2}$  (not  $\frac{4}{3}$ ) as long as the body, in the 1st abdominal joint not being "canaliculate," and in the legs being bright rufous (not "reddish-brown"). A specimen received from Mr. Cresson agrees in all these points with mine, and seems to me to be a ♀; and not a ♂, as supposed by its describer.

**Exochus albifrons**, [Walsh, Trans. Am. Ent. Soc. ii. p. 114].—♂♀.—Differ from the preceding only as follows:—1. The face projects beyond the eyes scarcely  $\frac{1}{2}$  of their shorter diameter, and the clypeus is punctured like the face. 2. The face, clypeus and mandibles except their teeth, and in ♂ a small triangular spot on the vertex adjoining each eye and a very narrow orbit extending just beyond the antennæ, are all yellowish-white. 3. In ♂ the 1st joint of the scapus is yellowish-white beneath; and the 1st joint of the flagellum is in ♂  $3\frac{1}{2}$ , in ♀  $2\frac{1}{2}$  times as long as wide, the following joints about  $\frac{1}{2}$  longer than wide, and the tips ♂♀ are not convolute. 4. The 2 middle carinæ of the metathorax are medially connected by a cross-vein so as to form a complete basal and central area, which last is divided from the posterior area by a distinct carina. 5. The tegulæ, a long capillary line under the front wing, a broad line clavate at base and underlying the humeral suture from the tegula nearly to the tip, the whole scutel ♂ or a wide line at its tip and sometimes also a narrower one at its sides in ♀, and ♂♀ a transverse line behind the scutel, are all white. In ♂ the entire mesosternum and its pleura, as well as that of the metasternum, nearly up to the wing, in ♀ only a spot above the middle coxa, a patch above the

hind coxa, and more or less of the lower face of the mesosternum, are all rufous. 6. The abdomen is in ♂  $\frac{1}{4}$ , in ♀  $\frac{1}{2}$  longer than the head and thorax together. Joint 1 is only  $\frac{1}{3}$  wider behind than before, and its 2 carinæ in ♂, and sometimes in ♀, only extend half way to the tip. 7. The legs are rufous, but the 4 front tibiæ are internally whitish, and the 4 front tarsi entirely so. In the hind legs the femora are lightly tipped with black, the knees whitish, the terminal  $\frac{1}{4}$ – $\frac{1}{2}$  of the tibiæ black, and the tarsi white with the extreme tips of the joints black. 8. The wings are slightly tinged with dusky. Length ♂ .27; ♂ .30–.31 inch. Front wing ♂ .23; ♀ .25 inch.

One ♂, two ♀. Distinct from *pleuralis* ♂, Cress., *dorsalis* ♂, Cress., and *pallipes* ♂, Cress., by their "broad white orbits" being reduced to a spot on the vertex, and by other characters.

**Exochus annulicrus**, n. sp.—♂.—Differs from *levis* ♀ only as follows: 1. The face projects beyond the eyes scarcely  $\frac{2}{3}$  of their shorter diameter, and the clypeus is punctured like the face. 2. The face, clypeus, mandibles except their teeth, a small triangular spot on the vertex next the eye, and a very narrow orbit reaching just beyond the antennæ, are all yellowish-white. 3. The first joint of the scapus is yellowish beneath; joint 1 of the flagellum is  $2\frac{1}{2}$  times as long as wide, the following joints about  $\frac{1}{2}$  longer than wide, and the tips are not convolute. 4. The carinate areas of the metathorax are all complete as in *albifrons*. 5. The tegulæ, a short capillary line under the front wing, a large triangular spot adjoining the tegula in front, a transverse line at the tip of the scutellum and another behind it, the entire lower face of the mesosternum, and a large spot before each anterior coxa, are all yellowish-white. No rufous markings. 6. The abdomen is  $\frac{1}{4}$  longer than the head and thorax together. Joint 1 is only  $\frac{1}{2}$  wider behind than before, and its 2 carinæ reach  $\frac{3}{4}$  of the way to its tip. 7. The legs are rufous, but in the 4 front legs the coxa, both trochanters, the knees, the inner face of the tibiæ, and the entire tarsi, are whitish. In the hind legs the lower face of the coxa and both trochanters are whitish, the first  $\frac{1}{3}$  of the tibiæ and also their extreme tips are black and the second  $\frac{1}{3}$  whitish; and the tarsi are whitish with the extreme tips of the joints black. Length ♂ .23 inch. Front wing ♂ .18 inch.

One ♂; ♀ unknown to me. Distinct from *albifrons* ♂ by the whitish sternum, coxæ and trochanters, the whitish annulus on the hind tibiæ, and the black hind knees; and from *pleuralis*, Cress., *dorsalis*, Cress., and *pallipes*, Cress., by its having no "broad white orbits." I am not sure of the sex of the above, but infer it to be ♂ from the spot on the vertex being similar to that of ♂ (not ♀) *albifrons*.

**Exochus atriceps**, n. sp.—♂.—Pale rufous. Head black, opaque, with confluent fine, shallow punctures, obsolete on the vertex which is polished and subobsolete on the clypeus. Face extending beyond the line of the

eyes by  $\frac{3}{4}$  of their shorter diameter. Face, orbits reaching to the occiput where they are dilated into a triangular spot, clypeus, mandibles except their tips, palpi and cheeks half way up the eye, all yellowish white. Antennæ brown-black, with joint 1 whitish beneath,  $\frac{3}{5}$  as long as the body, 1st joint of flagellum  $2\frac{1}{2}$  times as long as wide, 2d and following joints about  $1\frac{1}{2}$  times as long as wide. *Thorax* subpolished, with distinct, rather close, shallow, fine punctures, much less distinct and close on the pleura and sternum. Metathorax without a trace of any carinæ. Tegulæ, a broad line underlying the humeral suture nearly to its tip, and the lower face of the mesosternum, all whitish. The lateral and anterior margin of the mesonotum, and the region surrounding the two scutels, black. *Abdomen*  $\frac{1}{4}$  longer than the head and thorax together, subpolished, with rather close, fine, shallow punctures, obsolete on the tips of the joints. Joint 1 squarely truncate at base with the angles acute,  $\frac{1}{3}$  longer than wide,  $\frac{1}{3}$  wider behind than before, its 2 carinæ only reaching  $\frac{1}{3}$  of the way to the tip; its anterior angles, and the lateral carina nearly to its tip, black. Joints 7 and 8 black. Four front legs whitish, with the 4 femora (except the knees) and the outer face of the middle tibiæ, pale rufous. Hind legs pale rufous, with the tips of the coxæ, and the entire trochanters, spurs and tarsi, whitish; extreme tips of the femora, of the tibiæ and of the tarsal joints, obfuscated. *Wings* subhyaline; veins and stigma black. Length ♂ .24 inch. Front wing ♂ .18 inch.

One ♂; ♀ unknown to me. Distinct by its rufous abdomen, etc., from any of Mr. Cresson's species.

**Exochus albiceps**, n. sp.—♂.—Differs from the above only as follows: 1. The head is white, except a black spot just enclosing the ocelli and a large lunate black spot on the occiput, medially confluent with the other one by a short space. Face, except the orbits, tinged with rufous. 2. The 1st joint of the flagellum is only twice as long as wide, the 2d only  $\frac{1}{4}$  longer than wide, and the following joints square. 3. The thorax is glabrous and polished, and the carinæ on the metathorax are all distinct as in *albifrons*. The white markings are rufescent and less distinct, and the only black markings are a short line inside the origin of the front wing, an indistinct vitta on the disk of the lateral lobe of the mesonotum, and a large spot at the tip of its middle lobe. 4. The first joint of the abdomen is immaculate,  $\frac{1}{2}$  longer than wide, and twice as wide behind as before, its 2 carinæ reaching half way to the tip. An obtrigouate, dorsal spot at the tip of joint 5, and the whole of 6-8, black. 5. The legs are all dull luteous, with an abbreviated, exterior vitta on each femur, and an unabbreviated one on each tibia. Length ♂ .18 inch. Front wing ♂ .15 inch.

One ♂; ♀ unknown to me. Distinct from all Mr. Cresson's species by its rufous abdomen, etc.

#### EXOCHISCUS, new genus.

*Head* with the face and cheeks prominent (as in *Exochus*). Antennæ short and robust, subgeniculate; the 1st joint very long,



scarcely incrassated, cylindrical, and truncate a little obliquely from above downwards, the rest all short; joint 2 not much shorter than the 1st joint of the flagellum. *Thorax* with the parapsidal grooves obsolete. Scutel triangular, flattish, elevated. Metathorax with the carinate areas mostly developed. *Abdomen* sessile, elongate suboblong, compressed at tip; joint 1 unusually long, its sides but slightly converging in front. Joints 1 and 2 strongly sculptured and opaque; the rest glabrous and polished. Venter excavated. Ovipositor —? *Legs* robust and short; coxæ and femora incrassated, especially in the hind legs. Spurs normal. Tarsal claws simple, and, as well as the pulvillus, long and slender. *Wings* moderate. Radial area and stigma very short. Areolet large, pentagonal. Both recurrent veins but slightly curved. Veins at the tip of the wing subobsolete, except those of the radial area. Bullæ indistinct but apparently 4, A, B, CD, and E; A and B on the outer side of the areolet (as in *Orthocentrus*, Grav.), C and D confluent or separated only by an indistinct dot, and E rather nearer to the angle of its vein than to the areolet.

Differs from *Exochus*, Grav., by its large pentagonal areolet, by its long tarsal claws and pulvillus, and the great length and coarse sculpture of its first two abdominal joints; from *Periope*, Haliday, by its sessile abdomen, by its spurs 1, 2, 2 (not 1, 2, 1), by its simple claws, and by its large pentagonal areolet; from *Orthocentrus*, Grav., it is separated at once by its simple claws; and from *Polyrhabus*, n. g., by its areolet not being obsolete. In the compressed tip of the abdomen it resembles *Periope*, Hal.

*Exochiseus pusillus*, n. sp.—♂?—Black. Head subopaque, with minute, rather sparse punctures; vertex polished. Face projecting beyond the eyes by a space equal to their shorter diameter. Face brown; lower part of the face, clypeus, cheeks, mandibles except their teeth, and palpi, all brownish-yellow. Antennæ yellowish-brown, very robust, a little convolute at tip, half as long as the body. Joint 1,  $2\frac{1}{2}$  times as long as wide, scarcely more robust than the flagellum; joint 2 square; 1st joint of the flagellum longer by  $\frac{1}{2}$  than wide; the rest slowly shorter and shorter. *Thorax* subpolished, with minute, rather sparse punctures; the entire pleura and the metanotum polished and glabrous. Metathorax with the carinate areas complete, save that the cross-carinæ of the lateral areas are absent, and the basal is confluent with the central area; the two dorsal carinæ converging on their basal  $\frac{1}{4}$ , thence straight and equidistant, the space between them with transverse rugæ; exterior tip of the lateral area prolonged in a minute, robust, blunt thorn. Tegulae brownish-yellow. *Abdomen* with joints 1 and 2, except their extreme tips, opaque and

coarsely and longitudinally rugose; the remainder of the abdomen, except a few minute rugæ at the base of joint 3, glabrous and polished. Joint 1 twice as long as wide,  $\frac{1}{4}$  wider behind than before, its sides slightly convergent  $\frac{1}{3}$  of the way from the tip to the base, thence parallel nearly to the base, where they converge rapidly but in a regular curve without any angle or tooth; carinæ distinct, but not lofty or acute, all the way to the tip, and enclosing between them a shallow excavation. Joint 2 longer by  $\frac{1}{4}$  than wide; 3 nearly as long as 2; the rest rapidly shorter and shorter. Extreme tips of 1-4 rufo-piceous. Venter luteous on the basal  $\frac{2}{3}$ . *Legs* pale dull rufous; the 4 front ones honey-yellow. *Wings* hyaline; veins brown; stigma pale dusky, twice as long as wide. Radial area with a posterior angle of  $90^\circ$ . Areolet pentagonal, its sides converging a little as they approach the radial area, the 2d recurrent vein entering it rather nearer to its tip than to its base. Length ♂? .13 inch. Front wing ♂? .12 inch.

One ♂; ♀ unknown to me. Distinct by the shape of its areolet from all the *Exochus* described by Mr. Cresson that have any areolet at all, viz. *apicalis* and *fulvipes*=*pygmæus*.

#### POLYRHABDUS, new genus.

Antennæ rather robust, with the first joint of the scapus squarely truncate and joint 2 large; first joint of the flagellum short and the following joints almost square. Face and cheeks prominent as in *Exochus*. Scutel flattened and laterally and terminally carinate. *Abdomen* sessile; joint 1 with about 5 distinct longitudinal carinæ on its dorsal surface, joint 2 with 3, and joints 3 and 4 with 1 only. Venter much excavated. Ovipositor very short. *Legs* short and robust; femora incrassate; tarsal claws moderately long and simple; pulvillus as long as the claws. *Wings* shorter than usual. Areolet obsolete. Areolar cross-vein as long as usual. Bullæ 2, located as in *Exochus*, except that E is pretty close to the angle of its vein.

Distinct from *Exochus* by its carinate abdomen, its excavated venter and its short wings; and from *Alomya* by its sessile abdomen, obsolete areolet, the distinctness of its terminal wing-veins, its prothorax not prolonged in front, and its hind femora being more incrassate than the 4 front ones instead of *vice versa*.

*Polyrhabdus cariniger*, n. sp.—♀.—Black.—*Head* opaque, with very fine, dense punctures and pubescence, sparse on the subpolished vertex. Face projecting beyond the eyes  $\frac{2}{3}$  of their shorter diameter, pale yellow above and laterally, rufous on the disk and as far as the clypeus; the terminal foveæ, and a small, flat tubercle on its upper disk, fuscous. Clypeus and mandibles, except their tips, rufous. Palpi whitish. Antennæ brown-

black,  $\frac{1}{2}$  as long as the body, the 1st joint of the flagellum twice as long as wide, the 2d joint  $\frac{1}{3}$  longer than wide, the following ones square. *Thorax* polished, with fine, rather close-set, shallow punctures; parapsidal grooves subobsolete. Scutel flat, elongate semi-oval, with a very distinct lateral and terminal carina, and a transverse, deeply impressed stria at its base. Metathorax with 4 longitudinal carinæ, and a posterior lunate area, but no cross-carinæ. Tegulæ whitish. *Abdomen* subopaque, with close-set, fine punctures. Joint 1 longer by  $\frac{1}{3}$  than wide,  $\frac{1}{2}$  wider behind than before, with five longitudinal, acute, lofty carinæ distinctly visible from above, viz.: the 2 usual dorsal ones and a third in the terminal  $\frac{2}{3}$  of the space enclosed between them, and the 2 usual lateral ones which are here elevated on the dorsum so as to appear detached from the lateral edge of the joint when viewed from above. Joint 2 with 3 such carinæ, the 2 outer ones a continuation of the lateral carinæ of joint 1 and the middle one a continuation of its middle carina. Joint 3 with 1 carina only, a continuation of the middle one; and joint 4 with the same but only prolonged half way to its tip. Ovipositor exerted and as well as its sheaths blackish. Venter whitish. *Legs* rufous immaculate. *Wings* subhyaline, veins and stigma black. Length ♀ .27 inch. Front wing ♀ .17 inch.

The ♂ differs from the ♀ only as follows: 1. The entire face and a short orbit extending just beyond the antennæ, the cheeks, clypeus, and mandibles except their teeth, are all pale yellow immaculate; and the tubercle on the face is obsolete. 2. The antennæ are  $\frac{2}{3}$  as long as the body, the 1st joint of the flagellum twice as long as wide, the 2d  $\frac{1}{2}$  longer than wide, and the following ones  $\frac{1}{3}$  longer than wide; and the 1st joint of the scape is yellow beneath. 3d. The 4 anterior coxæ are whitish at tip. Length ♂ .30 inch. Front wing ♂ .20 inch.

Two ♂, one ♀. Differs from *Tryphon carinatus*, Cress., by the 2d abdominal joint having 3 (not 1) carinæ, by the 3d and 4th being unicarinate (not simple), and by the protuberant face. Very distinct from all other allied N. A. species by the short wings and the remarkable carinæ of the abdomen. One ♂ was bred from a small Lepidopterous pupa.

[GENUS ORTHOCENTRUS, Grav.]

Face and cheeks as prominent as in *Exochus*. Antennæ moderate, joints not unusually short, the 1st joint of the scapus truncate rather obliquely from above downwards, the 2d joint large. Scutel hunched, its sides declivous. Abdomen sessile, elongate-oval, almost elongate-oblong in ♂, the 2d joint in ♂ rather longer than wide. Ovipositor very short. Legs somewhat short and robust, the hind coxæ and femora much incrassated; tarsal claws, especially those of the hind legs, nearly as long as the last tarsal joint, and suddenly dilated on their basal  $\frac{1}{2}$  into a large tooth, the 2 teeth together simulating a 6th tarsal joint; pulvillus very nar-

row but as long as the claws. Wings with a large pentagonal areolet, sometimes incomplete by its terminal vein being subobsolete. When the areolet is complete the bullæ A and B cover nearly the whole of its terminal side and are separated only by a minute dot, C and D are confluent or separated from each other only by an indistinct dot, and E is as close as possible to the angle of the 1st recurrent vein. When the areolet is incomplete A and B are absent, the other bullæ remaining the same; and there are then consequently but 2 bullæ, CD and E, instead of 4, A, B, CD, and E.

Distinct from *Exochus* and *Polyrhabdus* by its hunched scutel, by its long, toothed tarsal claws, and its large pentagonal areolet; and from *Alomya* by its sessile abdomen, its wings as long as usual, and with the terminal veins distinct, its toothed claws, etc.

[Mr Walsh considered the two following species as belonging to a new genus which he called *Pachyonyx*; but they cannot be generically separated from *Orthocentrus*, Grav.—CRESSON.]

[*Orthocentrus*] *trifasciatus*, n. sp.—♂ ♀.—Black. *Head* subopaque with very minute, rather close-set, punctures, more sparse on the subpolished vertex. Face, cheeks, and the whole mouth, white. Antennæ  $\frac{2}{3}$  as long as the body ♂,  $\frac{3}{4}$  as long ♀, with the first joint of the flagellum about  $2\frac{1}{2}$  times as long as wide, and the following joints about twice as long as wide, brown-black, the scape and the extreme base of the flagellum whitish beneath, especially in ♂. *Thorax* polished, with very minute, rather dense punctures, more sparse on the mesothoracic pleura. Metathorax transversely rugose above, with 4 longitudinal subequidistant carinæ all attaining the lunate area of the posterior declivity, which is bounded by a well-defined carina throughout. Lower face of the mesosternum rufous, and in ♂ its pleura also fully half way to the wing. *Abdomen* opaque, very finely and rather densely rugose, subpolished towards its tip and at the tips of the joints. Joint 1 in ♂ full twice as long as wide, in ♀  $\frac{3}{4}$  longer than wide, ♂ ♀  $\frac{3}{4}$  wider behind than before, ♂ with its sides nearly straight, ♀ with its sides strongly convex for the 1st  $\frac{1}{3}$ , thence gently concave nearly to the tip, so that the whole joint is elongate-campanulate, ♂ ♀ geniculate at  $\frac{1}{4}$  the way to its tip, which is bisinuate, its 2 carinæ distinct nearly to its tip and enclosing in their basal  $\frac{1}{4}$  a round excavation. Joint 2 in ♂ longer by  $\frac{1}{4}$  than wide, ♂ ♀ with a large, impressed, lateral, sub-basal puncture, joint 3 square in ♂, joint 2 square in ♀, the rest in ♂ ♀ gradually shorter. Joints 2 and 3 with their terminal  $\frac{1}{4}$  clay-yellow, and joint 1 with a similar band, which in ♀ is narrower, darker and less obvious. Venter ♂ ♀ yellowish except at tip. Four front legs ♂ ♀ yellowish-white; hind legs very pale rufous, ♂ with the coxæ brown above and the entire femora, or sometimes only their upper surface, and sometimes the tip of the tibiæ, brown. *Wings* subhyaline; veins brown; stigma

nearly triangular, pale brown, twice as long as wide. Areolet large, pentagonal, the 2d recurrent vein entering it at  $\frac{3}{5}$  the way to its tip. Length ♂ .17 ♀ .12 inch. Front wing ♂ ♀ .13 inch.

Two ♂, one ♀.

[*Orthocentrus*] *stigmatias*, n. sp.—♀.—Differs from the above ♀ only as follows:—1. The face and the lower surface of the scape are yellowish-white (not white), and the entire flagellum is dull rufous or pale yellowish rufous below. Joints of the flagellum a little shorter. 2. The mesosternum is sometimes entirely black. 3. The 3 fasciæ on the abdomen are narrower, darker and much less distinct, that on joint 1 sometimes obsolete. 4. The 1st abdominal joint has its sides gently concave on its middle  $\frac{1}{4}$ , but elsewhere convex, their general direction being straight. 5. The hind legs are of a darker rufous. 6. In the wings both the veins and stigma are black, the stigma a little hunched on the costal margin, and very strongly hunched on the side adjoining the discoido-cubital cell, so as to describe a circular arc of  $45^\circ$ . Areolet the same, but with its outer vein so slender and pale as to be only visible in certain lights. Length ♀ .15 inch. Front wing ♀ .12 inch.

Two ♀; ♂ unknown to me. But for the different structure of the 1st joint of the abdomen and the hunched stigma, this might be taken for a variety of the preceding.

#### GENUS CERATOSOMA, Cresson.

The swelled face, which projects beyond the eyes by a space about equal to  $\frac{3}{4}$  their shorter diameter, shows the connection of this most anomalous genus with *Exochus*, etc. Mr. Cresson has omitted to notice one of its most remarkable characters, viz.: that the mouth is rostriform as in *Osprynchotus*, Spin., and *Lapton*, Nees, and in the Braconide genera *Agathis* and *Vipio*. The clypeus and mandibles are also larger and more prominent than common, but the mandibles have the usual subequal teeth, instead of being destitute of teeth, as they are described in the two Ichneumonidous genera named above. Occasionally this rostrum is a little retracted, but ordinarily it projects beyond the clypeus by a space equal in length to the longer diameter of the eye. Mr. Cresson speaks of a "small tooth near the tip of the tarsal claws" ♂ ♀. This tooth exists only in ♀, and it is long, acute and slender, and placed on the middle of the claw beneath. In the ♂ the terminal  $\frac{1}{4}$  of the claw bears, not a tooth, but 7 or 8 fine, long pectinations. I am not aware of any other example in *Ichneumonidae* where sexual differences exist in the armature of the tarsal claws. The genus is further remarkable by the entire body being

absolutely glabrous, which does not occur elsewhere in this family so far as I am aware. The thorn-like extremity of the ♀ abdomen, whence the genus takes its name, is produced by the 6th ventral uniting with the 7th dorsal to form a perfectly smooth and very elongate cone, the whole being jointed together so closely that it requires a good lens to perceive the suture, and being basally embraced by the sides of the 6th dorsal. Occasionally from the tip of this cone there projects the tip of the sheaths of the ovipositor; but more usually they are entirely concealed within. No doubt, as in *Figitidæ*, (see *Proc.*, etc., ii. p. 467, fig. 3, and p. 468, note,) the entire tip of the abdomen is used to pierce the body of the ichneumonized insect. As will be at once perceived, this is a very different arrangement from the ploughshare-shaped 6th ventral of *Arotes* and *Acanitus*, which, like the ventral valve of *Cynips*, (*ibid.* p. 467, fig. 1 a,) is entirely disconnected from the dorsal segments. The areolet is large and rhomboidal. The bullæ are very large and obvious on the brown wing, and are 3 in number, B, CD and E; but as both recurrent veins are nearly straight, the location of CD and E cannot be definitely fixed, further than that they are always much nearer to the areolet than to the other end of the vein. Out of 34 specimens carefully examined, the only irregularity in the bullæ that I could detect was, that in 1 ♂ *fasciata* B was obsolete, and in 3 ♂ *fasciata* C and D were not quite confluent. In coloration, but not in size, the genus varies very considerably.

*Ceratosoma apicalis*, Cress.—♂♀.—My specimens differ as follows from the description:—1. The face, clypeus and palpi are yellow immaculate, and, instead of 2 fulvous spots on the occiput, the entire occiput, except a yellow orbit narrower above and running across the entire vertex, but very wide below, is ferruginous. 2. The ferruginous color of the thorax is more or less densely stained with black; and there is always on the disk of the mesonotum a quadrate yellow spot, the anterior angles of which are connected with the clavate tip of the broad yellow line that overlies the humeral suture by a more or less obvious narrow yellow vitta, thus leaving an oblong blackish spot on the tip of the mesonotum. 3. There is a more or less broad anterior yellow margin to the mesosternum and its pleura, and a very narrow one to the pleura of the metasternum, the two yellow margins more or less entirely connected by an intermediate elongate yellow blotch of variable size and shape, which is located at the bottom of the pleura. 4. The terminal  $\frac{1}{2}$  of the metathorax is, as described, yellow, but on each side of its basal  $\frac{1}{2}$  there is a roundish yellow spot, which is occasionally confluent with the terminal yellow part. 5. The abdomen,

except sometimes towards its base, is not ferruginous but black. Joint 1 is yellow, with a black, or sometimes ferruginous, round spot on each side  $\frac{1}{2}$  of the way to its tip, which two spots are generally more or less confluent with the base and with each other; and the terminal  $\frac{1}{2}$  of joints 2-7 (not merely of 1-4) is yellow, but more obscurely so on the last joint or two. In a single ♀, there is a large, lateral, roundish, yellow spot just forward of the tip of the black basal  $\frac{1}{2}$  of joint 2. Length ♂ .47-.49, ♀ .49-.57 inch. Front wing ♂ .40, ♀ .42-.45 inch.

Two ♂, four ♀; all taken in August on Golden-rod and other flowers. Perhaps as this species was described by Cresson from alcoholic specimens, taken in Colorado, its true coloration was partly misstated. To some colors alcohol is absolutely ruinous.

*Ceratosoma fasciata*, Cress.—♂♀.—Differs in no respect from the ♂ ♀ *apicalis* described above, except, 1st, in the large spot on the occiput being generally in ♂ (but not in ♀) rather black than ferruginous, and in its being occasionally more or less confluent with the black spot above the antennæ; 2d, in the quadrate yellow spot on the disk of the mesonotum being smaller, and generally but not always isolated; 3d, in the yellow lateral spot on the anterior  $\frac{1}{2}$  of the metathorax being usually smaller, occasionally obsolete, and never confluent with the yellow terminal  $\frac{1}{2}$  of the metathorax; but especially, 4th, in the apex of the front wing being, not hyaline, but pale brown like the rest of the wing. In not a single specimen ♂♀ is the face or clypeus partly ferruginous, as *apicalis* ♀ is described by Cresson; and all the variations noted above under *apicalis* occur here also, with the single exception of the last one enumerated. Length ♂ .33-.48, ♀ .45-.47 inch. Front wing ♂ .32-.40, ♀ .37-.40 inch.

Twenty-four ♂, four ♀, all taken in August in company with *apicalis* on the flowers of the Golden-rod. It appears from the above that there is not a single perfectly constant character to separate these two species, except the hyaline tip of the wing of *apicalis*, which is absolutely invariable, and towards which no approximation whatever is made in the 28 specimens of *fasciata*. And yet these two very closely allied but perfectly distinct species, each represented by numerous specimens, occurred promiscuously in the same week in the same very limited locality. To any one who disbelieved in the present existence of species, this would be a suggestive fact. To those who believe that species have been distinct for all time, the Unity of Coloration that we see in these two highly ornamented species offers an insoluble enigma.

#### GENUS TRYPHON, Gravenhorst.

We have but to refer to the descriptions of this genus given by authors to see that, like many others in *Ichneumonidae*, it is a



very polymorphous one, and comprises very discordant materials. No less than 99 British species are referred to it by Westwood. (*Synops.* p. 47.) The bullæ are noticed under the same species which I possess. Those of *seminiger*, Cress. ♀ are B, C, D and E, C and D not so widely separated.

**Tryphon atricoxus**, n. sp.—♀ ?.—Black. *Head* subpolished, with fine, confluent punctures, minute and sparse on the vertex and clypeus. Face, but not the cheeks, a little prominent on the disk. Anterior  $\frac{1}{2}$  of the clypeus, mandibles except their teeth, and palpi, pale rufous. Antennæ  $\frac{3}{2}$  as long as the body, brown-black, the scapus and part of the 1st joint of the flagellum covered beneath with long, whitish pubescence; 1st joint of flagellum  $2\frac{1}{2}$  times as long as wide. *Thorax* subpolished, with fine, dense, confluent punctures—finer, shallower and more sparse on the pleura. Scutell elevated, its sides carinate, loftily towards its base, its anterior surface flattish. Metathorax coarsely rugose, the normal carinæ all present, the central area small and  $\frac{1}{2}$  wider than long. Tegulæ yellowish-brown. *Abdomen* depressed, oval, with the 1st joint subpolished and finely rugoso-punctate,  $\frac{1}{2}$  longer than wide,  $\frac{1}{2}$  wider behind than before, its sides straight save a rounded tubercle at each anterior angle, and a smaller acute one bearing the spiracle at  $\frac{2}{3}$  of the way to the tip; the two dorsal carinæ acute and attaining the tip where they unite. The remaining joints subopaque except towards the tip, with minute, shallow, rather sparse punctures. Joint 2 with a basal and medial tubercle, each not far from the lateral edge. Joint 1 coal-black; joint 2, and the basal  $\frac{2}{3}$  of 3, rufous; the rest blackish. Venter dull pale rufous, obfuscated at tip. *Legs* rufous, moderately slender, the coxæ and the basal trochanters of all the legs black. *Wings* subhyaline; veins black; stigma black, basally whitish. Radial area rather short, its posterior angle about  $115^\circ$ . Areolet small, triangular, obliquely elongate, and with a short petiole. Bullæ 5, A on the petiole, B normal, C and D widely separated, and E longer than usual and almost touching the angle of its vein. Length ♀ ? .20 inch. Front wing ♀ ? .17 inch.

One ♂; ♀ unknown. Belongs to Mr. Cresson's 4th Section. Distinct from *americanus*, Cress. ♂, *affinis*, Cress. ♀ (which is apparently the other sex of *americanus*), *seminiger*, Cress. ♀, *semirufus*, Cress. ♀, *analisis*, Cress. ♂, *festivus*, Cress. ♂, *cinctus*, Cress. ♂ (Cuba), and *claviventris*, Cress. ♂ (Cuba), by the coloration of its abdomen; from *tibialis*, Cress. ♂ by the hind legs not being annulate with black and white; and from *rufocinctus*, Cress. ♀, *minimus*, Cress. ♀, *capitatus*, Cress. ♂, *exiguus*, Cress. ♀ (Cuba), *lineolatus*, Brullé ♀ (S. A.), and *mesoxanthus*, Brullé ♀ (S. A.), by the coloration of the legs and the areolet not being obsolete.

[This is probably only a variety of *T. dimidiatus*.—CRESS.]

## GENUS EXENTERON, Hartig.

SECTION 1.—*Areolet rhomboido-triangular*.

**Exenteron ornatus**, n. sp.—♂.—Black. *Head* large and  $\frac{1}{2}$  wider than the thorax, subpolished, with very minute, sparse punctures; the face subopaque and indistinctly rugoso-punctate. Face, a short, narrow orbit just passing the antennæ, cheeks below the eye, clypeus, and mandibles except their teeth, all yellow. Palpi whitish. Antennæ as long as the body, brown-black on their basal  $\frac{1}{2}$  save that the scapus is yellow beneath, the other  $\frac{1}{2}$  gradually rufous; 1st joint of flagellum  $3\frac{1}{2}$  times as long as wide. *Thorax* polished, with very minute, sparse punctures. Metathorax subopaque and finely rugose, with its carinate areas all complete; the central area  $\frac{1}{2}$  longer than wide, rounded in front, and with its sides straight but slightly convergent behind. Tegulæ, a line under the front wing, a pointed line clavate behind adjoining the tegula and underlying the humeral suture  $\frac{1}{2}$  way to its tip, scutel and a transverse line behind it, and also the prosternum, all yellow. *Abdomen* short, depressed, broadly obovate, subpolished, with very fine, sparse punctures which are subobsolete towards its tip and the tips of the joints. Joint 1 squarely truncate in front, with the apex of its anterior angles prolonged a little,  $\frac{1}{2}$  longer than wide,  $\frac{1}{3}$  wider behind than before, its sides parallel  $\frac{2}{3}$  of the way to the tip, thence gradually diverging; the 2 usual carinæ distinct  $\frac{3}{4}$  of the way to the tip. Joint 1 black, with an obtrigonal, rufous, dorsal spot on its terminal  $\frac{1}{3}$ ; the rest of the abdomen pale rufous. Venter pale rufous. *Legs* pale rufous; the 4 front legs with their coxæ and trochanters yellowish-white, but the middle coxæ with their anterior face rufous. *Wings* long, hyaline; veins black; stigma black, its basal  $\frac{1}{3}$  whitish. Areolet sessile, rhomboido-triangular, and obliquely elongate, the 2d recurrent vein entering it full  $\frac{2}{3}$  of the way to its tip. Bullæ 4, A, B, C, and E; A and B on the exterior cross-vein of the areolet and separated by a considerable space, C midway between the salient angle and the areolet, and E rather nearer to the angle of its vein than to the areolet. Length ♂ .17 inch. Front wing ♂ .17 inch.

One ♂; ♀ unknown to me.

SECTION 2.—*Areolet triangular*.

**Exenteron flavicoxus** (*Cteniscus flavicoxæ*, Cress., ♀ only described).—♂.—Differs from the preceding ♂ only as follows:—1. The orbit is prolonged to the vertex, much contracted in width opposite the antennæ, thence widening till at the commencement of the vertex it is expanded into a short, blunt, robust bifurcation. 2. The yellow cheeks are widely prolonged behind the eye, so as to be only separated from the frontal orbits by a space equal to  $\frac{1}{2}$  the shorter diameter of the eye. 3. The antennæ are only  $\frac{3}{4}$  as long as the body. 4. The 3 cross-carinæ of the metathorax are subobsolete; the yellow line under the humeral suture is much wider and extends twice as far forwards, and there is a square yellow spot on the disk of the mesonotum. 5. The abdomen is elongate-subolong, joints 2-5 being of uniform width. Joint 1 is  $\frac{1}{4}$  narrower at tip than the base of

2, full twice as long as wide,  $\frac{1}{2}$  wider behind than before, the humeral angles separated by a short space from its base, and respectively  $\frac{1}{3}$  and  $\frac{5}{8}$  of the way from these angles to the tip there is another tooth-like angle, the 3 lateral interspaces each gently concave, and the joint widest at the hindmost angle. Joint 1 is black, with a small, obtrigonal, dorsal, yellowish spot at tip, and there is a large, blackish cloud on each anterior angle of joint 2, the space between and behind these 2 clouds yellowish. The rest of the abdomen pale rufous. 6. The legs are pale rufous, but all the coxæ and trochanters are pale yellow. 7. The areolet is triangular and slightly peduncled, its exterior side a little convex, the 2d recurrent vein entering it exactly at its tip. Bullæ 4, B, C, D, and E; C and D very wide apart, and E rather nearer to the angle of its vein than to the areolet. Length ♂ .24 inch. Front wing ♂ .20 inch.

The ♀ (as described by Mr. Cresson) differs from the above ♂ only as follows:—1. There is a dark stain on the middle of the face, and the tips of the antennæ are "yellowish," not rufous. 2. There is no yellow spot on the disk of the mesonotum, only the tip of the scutel is yellowish, and the metascutellum is immaculate. 3. The posterior tibiæ are brownish. 4. The abdomen is "short, broad, and subdepressed"; joint 1 black immaculate, and the sides of 2-4 (not of 2 only) blackish. Length ♀ (Cresson) .21 inch.

One ♂. As the differences between my ♂ and Mr. Cresson's ♀ are mostly sexual, or such as may perhaps be ascribed to variation, I have considered the two as provisionally identical.

#### GENUS CTENISCUS, Haliday (= *Exenterus*, Hartig).

*Head* large and transverse. Clypeus moderate, transversely oval. Antennæ moderate; the 1st joint obliquely and laterally truncate; the flagellum with the joints rather long. *Thorax* with the parapsidal grooves distinct but not impressed. Scutel elevated. Carinate areas of the metathorax mostly distinct. *Abdomen* sessile, elongate; joint 1 long, flattened, sublong; joint 2 much shorter; the rest slowly shorter and shorter. Venter excavated. Ovipositor —. *Legs* slender, moderately long; spurs 1, 1, 0; claws pectinated, the pulvillus shorter than the claws. *Wings* moderate; radial area and stigma rather short; areolet triangular, small; 1st recurrent vein angulated; the 2d recurrent vein almost straight, slightly convex externally. Bullæ 3, B, CD, and E; B normal, small, and indistinct; CD occupying the middle of its vein, and E pretty near to the angle of its vein.

Differs from *Periope*, Haliday, by its sessile (not subpetiolated) abdomen, its flat (not protuberant) face, and its spurs 1, 1, 0 (not 1, 2, 1). And from *Exyston*, Schiodte, by its sessile (not petio-

lated) abdomen and its pectinate claws. *Exenterus*, Hartig, as described by Brullé, appears identical with *Cteniscus*, Hal., as described by Westwood, having, as Brullé expressly asserts, "small, simple claws"; and yet on the very next page Brullé says that *Exyston* differs from *Exenterus* in the claws being simple!! (*Hymen.* pp. 320-1.) Wesmael, writing in 1854, seems to be unacquainted with *Cteniscus* which was published in 1840, for in his Synoptical Table he refers solely to *Exenterus*, and says that that genus usually has pectinate claws.

*Cteniscus albilineatus*, n. sp.—♂?—Black. *Head* polished, the face and the base of the clypeus with some minute, sparse punctures. Face except the terminal foveæ, a short, narrow orbit scarcely passing beyond the antennæ, cheeks, clypeus except its tip which is honey-yellow, mandibles except their teeth, and palpi, all white. Antennæ  $\frac{2}{3}$  as long as the body, brown-black, pale yellowish-brown beneath on their middle  $\frac{1}{3}$ . *Thorax* polished, with very minute, rather dense punctures. Metathorax subpolished and rugose, the carinate areas all present, save that the basal is confluent with the central area, and the cross-carinæ of the lateral areas are absent. Hind angles of the lateral areas prolonged in a short, robust thorn directed outwards and backwards. Tegulæ, a spot before them under the humeral suture, a line under the front wing, a transverse spot on the anterior edge of the mesothoracic pleura, the anterior edge of the collare, the prosternum, the hind surface of the scutel, and the whole of the metathoracic scutel, all white. *Abdomen* subopaque, densely and minutely rugoso-punctate, subpolished towards its tip and the tips of the joints. Joint 1 longer by half than wide,  $\frac{1}{3}$  wider behind than before, its anterior angles laterally prolonged in a short, robust tooth, its sides parallel on the terminal  $\frac{1}{3}$ , thence scarcely concave and slowly converging to the basal tooth; carinæ distinct and acute nearly to the tip. Joint 2 slightly longer than wide,  $\frac{1}{4}$  shorter than joint 1; 3-8 slowly shorter and shorter. Tip of 2-7 with a marginal white line, gradually stouter on 2-6, on 7 very slender. Venter whitish. Four front *legs* pale rufous, with their coxæ and trochanters white. Hind legs black, with the 2d trochanter, and the upper face of the coxæ, white. *Wings* hyaline; veins black, radius rufous; stigma black, its basal  $\frac{1}{4}$  whitish. Radial area with a posterior angle of 120°. Areolet with its inner side  $\frac{1}{3}$  shorter than either of the other two. Length ♂? .25 inch. Front wing ♂? .22 inch.

One ♂?; ♀ unknown. It is possible that the compression of the tip of the abdomen may be due to an accident, but it has not that appearance.

[This is very closely allied to *C. annulipes*, Cress., Trans. Am. Ent. Soc. ii. p. 112.—CRESSON.]

## GENUS RHYSSA, Grav.

In this genus the bulla A is absent, B is located at the lower end of its cross-vein, C and D are wide apart, and E is nearer than usual to the angle of the first recurrent vein. Judging from the only species—*Rh. lunator*, Fabr.—of which I possess numerous specimens, the amount of colorational variation is small, but the variation in size is very great, some ♂ specimens being  $\frac{1}{2}$  longer than others, and the ovipositor in one of my specimens being only  $\frac{1}{8}$  longer than the body; while in others, according to Brullé, it is nearly twice as long as the body.

*Rhyssa atrata*, Fabr., and *Rhyssa lunator*, Fabr. — This last does not occur near Rock Island, Ill.; but I took numerous specimens in South Illinois, in the beginning of July, flying round a hickory log, and I have also seen specimens in Mr. Bolter's collection at Chicago.

*Rhyssa* [(*pimpla*)] *humida*, Say, Bost. Jour. ii. p. 224]. — ♀. — Black. *Head* with broad, white orbits, which are widely interrupted on the vertex and narrowly at the insertion of the antennæ, where the white color is replaced by a shallow, square depression with a glassy, semipellucid, lead-colored lustre. Palpi white. Antennæ brown-black,  $\frac{2}{3}$  as long as the body. *Thorax* with the transverse rugæ coarse; the tegulæ, a large oblong spot under the front wing, and a very large triangular spot before it prolonged at the tip in a line as long as the triangle itself and the whole adjoining the humeral suture below, a line above the anterior coxæ, a pair of parallel lines arranged side by side longitudinally on the disk of the mesothorax and half as long as the mesothorax itself, the lateral and hind margin of the scutel, and two round subconfluent spots transversely arranged on the postscutel, all white. Metathorax very finely rugose, polished, with a longitudinal acute stria deeply impressed in front and fading out behind. Meso- and meta-sternum and their entire pleura glabrous and polished, pale rufous, except that on the terminal  $\frac{1}{2}$  of the metathoracic pleura there is an elongate white spot separating the black color from the rufous. *Abdomen* polished, with very fine transverse rugæ; joint 1 with a shallow, wide dorsal stria extending nearly to its tip, and basally wider and deeper; joints 2-7 each with a lateral, subterminal, roundish, white spot, which in 2 is a mere white dot, and becomes larger in each successive joint, till in 6 and 7 it not only covers nearly the whole length of the joint, but extends upwards so as to be respectively 2 and 3 times as wide as long; joint 8 highly polished and tapered to a conical point behind, the cone about as long as joint 7 and flattened below. Ovipositor piceo-rufous, a little longer than the body, its sheaths black both internally and externally. Venter, with the tip of the joints, whitish. *Legs* pale rufous, the anterior trochanters whitish; the knees, tibiæ, and tarsi,

of all 6 legs also whitish, except that the exterior surface of the middle tibiæ and tarsi and all the tarsal tips and sutures are obfuscated, and that in the hind tibiæ the terminal  $\frac{1}{2}$  is dusky and there is an infuscation externally near their base. *Wings* hyaline; veins black, paler on the post-costa; stigma black, 4 times as long as wide and whitish on its basal  $\frac{1}{2}$ . Areolet rhomboido-triangular, the recurrent vein entering it in the middle below, and with a peduncle half longer than the triangle itself. A faint, brown cloud in the inner angle of the radial area. Length ♀ .55 inch. Front wing ♀ .40 inch. Ovipos. .70 inch.

One ♀; ♂ unknown to me. Allied to *persuasoria*, Linn., of Europe, Canada, and the Rocky Mountains, and also to *albo-maculata*, Cress.; but is distinguished at once from both by the very different markings of the thorax and abdomen, and by the meso- and meta-sternum being rufous, not black. From *Nortoni*, Cress., it is at once structurally separated by the 2d recurrent vein entering the areolet in the middle of its posterior side, and not at the apex as in *lunator* and *atrata*, and by the white orbits being entirely interrupted opposite the antennæ, and not merely emarginate there. *Atrata*, Fabr., *lunator*, Fabr., *nitida*, Cress., *lævigata*, Br., *marginalis*, Br. (hab. unknown), and *terminalis*, Br. (Chili), have no white markings either on the thorax or abdomen, and otherwise are entirely unlike. I suspect that these 3 species with white markings on the thorax and abdomen, viz. *persuasoria*, *albo-maculata*, and *humida*, are all distinguished from the others by having a rhomboido-triangular, not triangular, areolet; and in that case they may conveniently form a separate subgenus to which the name of *Pararhyssa* may be given. *Epirhyssa*, Cress., which has no areolet at all, has a coloration very similar to that of *Rhyssa* proper.

[*Atrata*, *lunator* (= *lævigata* ♂), *Nortoni*, and *nitida*, all belong to the genus *Thalessa*, Holmgren; while *persuasoria*, *albo-maculata*, *humida*, and *canadensis*, belong to *Rhyssa* proper.—CRESSON.]

#### GENUS EPHIALTES, Grav.

In this genus, which has a rhomboido-triangular areolet, the bulla A is small, often subobsolete, occasionally obsolete, and is placed on the same cross-vein as B, but immediately adjoining the radial area, and is separated from B. which is located near the other end of its cross-vein by a considerable space. The other bullæ are all present and normally located, except that C and D are very wide apart, and E is generally closer than usual to the angle of the 1st recurrent vein. Unlike *Rhyssa*, *Ephialtes* does not

seem to vary very considerably in size, though in *irritator* some specimens appear to be  $\frac{1}{2}$  longer than others; and, so far as my scanty specimens show, it varies but very little in coloration. All my species have as short, robust, basal tooth on the tarsal claws.

*Ephialtes gigas*, n. sp. — ♀. — *Head* with the vertex and front subglabrous and polished, the face (except the orbits) and the clypeus closely punctate, subopaque, and with sparse cinereous hairs, the clypeus truncate at tip, and slightly emarginate and depressed in the middle. Palpi yellowish-white. Antennæ full  $\frac{1}{2}$  as long as the body. *Thorax* above and below a little hairy, especially behind; polished, with fine but not dense punctures interspersed, especially on the anterior lobe, with some fine longitudinal rugæ. Tegulæ brownish-white. Metathorax finely rugoso-punctate, with two acute, lofty, subparallel carinæ extending full half way to the tip, where they suddenly expand so as to enclose an obsemicircular space, the excavation between the parallel carinæ glabrous in the middle throughout. *Abdomen* opaque and presenting the appearance of virgin silver, excepting of course on the small glabrous and polished tip of each joint, with regular, confluent, fine punctures entirely free from rugæ except on joint 1; these punctures gradually disappear towards the tip of the abdomen, so that the last few joints are subglabrous and polished. Joint 1 laterally rugoso-punctate, with the usual 2 dorsal carinæ lofty at base and fading out at  $\frac{3}{4}$  the way to the tip, and a lateral one lofty at tip and fading out  $\frac{3}{4}$  the way to the base. A subhemispherical, highly polished excavation on each side in the suture between the 1st and 2d joints, from which there proceeds an oblique, deeply impressed stria terminating in the spiracle of joint 2. A similar but much fainter excavation and stria in the following suture. The usual tubercles very distinct on joints 3-5, and elongate, not round. Joints 1 and 2 equal in length, each being  $2\frac{1}{2}$  times as long as wide; 3 a trifle shorter; 4 shorter by  $\frac{1}{4}$  than 2; and 5 shorter by  $\frac{1}{4}$  than 4, so as to be only about  $\frac{2}{3}$  as long as either 1 or 2. Ovipositor full  $\frac{1}{3}$  longer than the body. *Legs* pale rufous, all the sutures a little darker; all the spurs, the tips of the 4 front tarsi, the tips of the hind tibiæ, and the whole of the hind tarsi, a little obfuscated. *Wings* subhyaline, tinged with smoky yellow; veins black, the radius and the extreme base of the other veins pale rufous; stigma black, 5 times as long as wide, and with its basal  $\frac{1}{4}$  pale rufous. Areolet rhomboido-triangular, the 2d recurrent vein, which describes a regular and very convex curve, entering it  $\frac{3}{4}$  of the way to its tip. Length ♀ 1.27 inch. Front wing ♀ .83 inch. Length abd. ♀ .85 inch. Width abd. ♀ .10 inch. Ovipos. 1.80 inch.

One ♀, taken on the wing in October; ♂ unknown to me. This is the largest species found in North America except *occidentalis*, Cress., from which it differs in the very different proportions of abdominal joints 1-5, in their not being transversely striate, and in the ovipositor being black, not ferruginous, which last character however is probably of but slight specific value. May possibly



be identical with *manifestator*, Linn. (Europe) ; but Mr. Cresson, in enumerating the characters which separate that species from his *occidentalis*, does not mention any of those which separate *gigas* from *occidentalis*. *E. rufescens*, Cress. (Cuba), and all the 10 species described by Brullé, differ in the body being partly luteous, ferruginous, or rufous, and in other respects.

*Ephialtes pygmæus*, n. sp.—♀.—Differs from *gigas* ♀ as follows:—1. The size is  $\frac{1}{2}$  smaller. 2. The face is polished and but sparsely punctate. 3. The carinæ of the metathorax are much less prominent in front and subobsolete behind. 4. The relative proportion of abdominal joints 1-5 is somewhat different, 2 being distinctly shorter than 1, and 2-5 each about  $\frac{1}{2}$  shorter than the preceding, so that 5 is only about  $\frac{1}{2}$  as long as 1; and in addition, instead of 2 being  $2\frac{1}{2}$  times as long as wide, it is only  $1\frac{1}{2}$  times as long as wide. 5. The tubercles on abdominal joints 2-5 are round, not elongated. 6. The ovipositor is rather piceous than black. 7. The legs are pale rufous, but both trochanters of the front leg, the outermost one of the middle leg, and sometimes the outermost one of the hind leg, are distinctly whitish; and the 4 front knees, tibiæ and tarsi are yellowish-white, the exterior tips of the tibiæ and the tarsal tips obfuscated, especially in the middle legs. In the hind legs the terminal  $\frac{1}{3}$  of the femur is fuscous, the tarsus is entirely fuscous, and the tibia is fuscous with its basal  $\frac{1}{3}$  white and a whitish interior vitta extending  $\frac{3}{4}$  of the way to the tip. 8. The wings are subhyaline. Length ♀ .58-.63 inch. Front wing ♀ .46-.48 inch. Length abd. ♀ .38 inch. Width abd. ♀ .07 inch. Ovipos. .73-.83 inch.

Two ♀ ; ♂ unknown to me. Differs from *occidentalis*, Cress., by the first two characters which separate *gigas* from that species, and by the 1st, 2d, 3d, 4th and 7th characters which separate *pygmæus* from *gigas*. From *manifestator* (Europe), *rufescens*, Cress, and Brullé's 10 species, it differs in the same way as *gigas* does.

*Ephialtes pusio*, n. sp.—♀.—Differs from *gigas* ♀ as follows:—1. The size is  $\frac{1}{2}$  smaller. 2. The face is highly polished and scarcely punctate. 3. The metathoracic carinæ are obsolete, being represented only by a slightly impressed stria extending  $\frac{2}{3}$  of the way to the tip. 4. The carinæ of the 1st abdominal joint are entirely obsolete. 5. The relative proportions of the first 5 abdominal joints are quite different, 2-4 being equal in length and each twice as long as wide, and 1 about  $\frac{1}{4}$  shorter, and 5 a trifle shorter than 2-4. 6. The usual tubercles are obvious only on 3 and 4, and are much less prominent and round, not elongated. 7. The ovipositor is rather piceous than black. 8. The legs are pale rufous, all the sutures a little darker, but both trochanters of the front leg, and the outermost one in the middle and hind leg, are whitish; and in the front leg the tarsal tip, in the middle leg the exterior face of the tibia and the whole tarsus,

and in the hind leg the extreme tip of the femur and the whole tibia and tarsus, are pale fuscous. 9. The wings are subhyaline. Length ♀ .60 inch. Front wing ♀ .36 inch. Length abd. ♀ .42 inch. Width abd. ♀ .06 inch. Ovipos. .85 inch.

One ♀ ; ♂ unknown to me. Comes very near *pygmaeus*, n. sp., but differs notably in the carinae of the metathorax and of the 1st abdominal joint being obsolete, in the slenderer abdomen, and in the entirely different proportional length of the first 5 abdominal joints. In this last character it approximates remarkably to *occidentalis*, Cress., which is said to have the first 5 abdominal joints subequal ; but it differs from that species by these joints being only twice, instead of thrice, as long as wide, and by the 1st, 2d, 3d, 4th and 8th characters which separate *pusio* from *gigas*. From the other described species it differs like the preceding.

*Ephialtes irritator*, Fabr.—♀.—Differ from *gigas*, n. sp., as follows :—  
1. The size is nearly  $\frac{1}{2}$  smaller. 2. The palpi are dusky. 3. The tegulae are pure white. 4. The pectus is subglabrous and highly polished. 5. The metathorax is more coarsely and strongly rugoso-punctate, the carinae subobsolete, but with an acute, impressed stria between them extending  $\frac{3}{4}$  of the way to the tip. 6. The abdomen is subpolished, the punctuation being less strong ; joint 1 is twice as long as wide, and, as in *pygmaeus*, joints 2-5 are each about  $\frac{1}{6}$  shorter than the preceding. Joint 1 black, the remainder rufous, 2-4 each with a short, transverse, black spot at the lateral tip. Venter, except the basal  $\frac{1}{2}$  of joint 1, dull pale rufous. 7. The usual tubercles are distinct on 2-5, but, except on 2, round instead of elongate. 8. The ovipositor is piceous. 9. The legs are pale rufous, with all 6 coxae and the basal trochanters of the hind leg black ; both trochanters of the front leg, the 2d and all but the lower surface of the basal trochanter of the middle leg, all 6 knees, and the tibiae and tarsi of the 4 front legs, yellowish-white ; hind tibiae and tarsi pale dull rufous. 10. The wings are subhyaline, and it is only the base of the radius that is pale rufous, and the stigma is entirely black. Length ♀ .64-.70 inch (.98 inch Brullé). Front wing ♀ .53-.54 inch. Length abd. ♀ .41-.47 inch. Width abd. ♀ .07 inch. Ovipos. .84-.85 inch (1.18 inch Brullé).

Two ♀ ; ♂ unknown to me. Readily distinguished from all the preceding, and from *occidentalis*, Cress., and *manifestator* (Europe), by the rufous abdomen. *Eph. rufescens*, Cress., differs in having the 1st abdominal joint rufous instead of black, but a single pair of black spots on the abdomen, and by its rufous head and thorax. It is remarkable that *Eph. oculatus* (South Africa) has the same 6 abdominal spots that *irritator* has, though it is otherwise quite different. None of the other species described by Brullé exhibit this character. According to Brullé, *irritator*

has the tip of abdominal joints 5-8 more or less black. I find no traces of this character in my specimens. The habitat he gives is Carolina. According to Mr. Cresson, there is a specimen in the collection of the American Entomological Society "with the abdomen half black," i. e. with the normal spots on 2-4 confluent.

#### GENUS CYLLOCERIA, Schiodte.

The very remarkable emargination at the tip of the 3d and base of the 4th joint of the flagellum of ♂ antenna, which has much the appearance of an accidental mutilation propagated by inheritance, seems to identify this genus sufficiently when taken in connection with several other characters in which the American type agrees with the European one. Brullé, indeed, states only that "the tip of the 6th and base of 7th joints are emarginate," without specifying whether he refers to the antennæ or to the abdomen; but the etymology of the generic name proves that he must refer to the antennæ. The American type differs, however, from the European type in the 1st joint of the antennæ being laterally (not inferiorly) truncate in an angle of about 45°. Moreover, the 2d joint of the maxillary palpi is elongate-obtrigonal, and  $2\frac{1}{2}$  times as long as wide; the 3d joint  $\frac{1}{3}$  longer than the 2d, but a trifle narrower, straight, and basally a little constricted; the 4th and 5th slender and each respectively a trifle shorter than the preceding. Whereas Brullé says that the 2d joint is *wider than the others*, and that the 3d is *twice as wide as the 2d* and curved; so that it is impossible to tell which, according to him, is the wider, the 2d or the 3d. But in *Ichneumonidæ* the structure of the palpi appears to be rather of specific than of generic value. His description of the labial palpi agrees exactly. In my species the mandibles are toothed, the clypeus is very short and transverse as in *Xylonomus*, etc., the head scarcely twice as wide as long and much excavated behind so as to describe a circular arc of about 60°, and the parapsidal grooves are as deeply impressed as in *Xylonomus*, etc. In the ♀ the terminal joints of the abdomen are extended and the 6th ventral not prolonged, or, as it is termed, "the anus is slit." The bullæ are 4, A, C, D, and E; A indistinct and placed on the forward end of the areolar cross-vein, C well forwards on its vein, C and D quite widely separated, and E pretty close to the angle of its vein.

*Cylloceria* [*occidentalis*, Cress., Trans. Am. Ent. Soc. iii. p. 160.]-♀. —Black. *Head* subopaque, with very minute, rather dense, shallow punctures and rugæ; labrum more or less exerted, polished. Palpi, except the 1st joint, whitish. Antennæ  $\frac{4}{5}$  to quite as long as the body, brown-black, the flagellum sometimes rufous beneath, sometimes entirely rufous; 1st joint of the flagellum 6 times as long as wide; 2d joint  $\frac{3}{5}$  as long as the 1st; the rest rapidly shorter. *Thorax* polished, with very minute, rather sparse, shallow punctures, the pleura of the mesothorax minutely aciculate. Metathorax and its pleura opaque, finely and densely rugoso-punctate, with 6 longitudinal parallel carinæ attaining the lunate area, the 2 middle ones the nearest, and the 2 outer ones, one of which is lateral, the next nearest. No cross carinæ. Tegulæ whitish. *Abdomen* oval, opaque, with dense rugæ, fine on joint 1, minute on 2 and 3; joints 4-8 and the tips of 2 and 3 subglabrous and polished. Joint 1 almost twice as long as wide,  $\frac{1}{4}$  narrower at tip than is the base of 2, twice as wide behind as before, its sides scarcely convergent for  $\frac{3}{4}$  of the way from the tip to the base, at which point the tubercle is located, thence converging rapidly; the usual carinæ obsolete except at the extreme base. Joint 2 half as long as 1 and  $\frac{1}{4}$  wider than long; 3-5 a little shorter; the rest short. Ovipositor rufous, basally piceous, about  $\frac{2}{3}$  as long as the body; sheaths black, tapered, basally  $\frac{2}{3}$  as wide as the last tarsal joint of the hind legs. Venter excavated, longitudinally carinate, more or less whitish at the tips of the joints. *Legs* pale rufous; the tips and sometimes the whole of the hind tibiæ fuscous. *Wings* subhyaline, more or less tinged with smoky yellow. Veins black; stigma black, its basal  $\frac{1}{4}$  white. Radial area rather elongate, its posterior angle about  $135^{\circ}$ . First recurrent vein but slightly crooked, the 2d regularly convex outside. Length ♀ .36-.43 inch. Front wing ♀ .27-.32 inch. Ovipos. .19-.30 inch.

The ♂ differs from ♀ as follows:—1. The antennæ are brown-black immaculate, more robust, the 1st joint of the flagellum scarcely 5 times as long as wide. 2. The abdomen, as usual, is narrower; joint 2 is full twice as long as wide, its carinæ are distinct for  $\frac{3}{4}$  of the way to the tip, and joint 2 is nearly square. Length ♂ .30-.35 inch. Front wing ♂ .25-.30 inch.

Three ♂ ; three ♀. The first N. A. species hitherto recognized as belonging to this genus. But for the great difference in size (♀ .15 inch) this might be taken for *Anomalon sexlineatum*. Say. In my smallest ♀ the ovipositor is "hardly as long as the abdomen," as described by Say; in the other 2 ♀ it is considerably longer.

GENUS LAMPRONOTA, Curtis (= *Lissonota*, Grav., preoccupied).

In this genus the venter is longitudinally carinate towards the base, and in *L. breviventris*, n. sp., *L. nigrita*, n. sp., and a single specimen of *L. pictiventris*, n. sp., the carination is continued nearly to the tip, thus giving the tip of the abdomen a

compressed appearance. Both these characters denote an affinity with the *Banchus* group; but the elongate intermediate joints of the abdomen in most species, and the subobsolete abdominal tubercles in others, show its relations to be rather with *Ephialtes*.

The fundamental difference between *Lampronota* and *Ephialtes* is that the terminal abdominal joints are here retracted in both sexes, but much more so in ♀ than in ♂, and in the ♀ the 6th ventral is prolonged behind so as to form a ventral valve extending always to the tip of the abdomen and occasionally beyond it. In both genera abdominal joints 2 and 3 are longer than wide, with the exception of *L. pictiventris*, n. sp., *L. breviventris*, n. sp., and *L. nigrita*, n. sp., but they are proportionally more so in *Ephialtes*. In all my species of *Lampronota* the declivous posterior surface of the metathorax is lunate and bounded by a distinct carina, the lunate area being closed above, and not communicating, as in *Ephialtes*, with the elongate area enclosed by the two normal longitudinal carinæ. The claws are also simple; the areolet is rhomboidal and more or less petiolated, instead of being, as in all my *Ephialtes*, rhomboido-triangular and sessile; and the 2d recurrent vein is more or less biangulated, instead of forming a regular convex curve. The colors are black, or black and rufous; the abdomen often more or less rufous; with the head, the humeral suture, and the scutel, often marked with white. The bullæ are generally but three in number, B, CD, and E; B located well backwards on the cross-vein; CD well forwards on account of the salient angle of the second recurrent vein being well forwards, and generally with a black dot placed at the apex of the angle and representing the typical stump of a vein; E further than usual from the angle of the first recurrent vein, being generally rather nearer to the areolet than to the angle, or at all events in the middle between the two. But in *L. breviventris*, which, as will have been seen, is otherwise anomalous, there are 4 distinct bullæ, B, C, D, and E; C and D being here separated distinctly by a black space nearly twice as long as the vein is wide, and the biangulation being subobsolete. In other respects the bullæ do not differ in this species. Judging from the two species of which I possess numerous specimens, and the three species of which I possess two only, the genus is pretty constant both in size and coloration. In *interpellata*, n. sp., *pictiventris*, n. sp., and *breviventris*, n. sp., traces appear of the abdominal

tubercles which are well known to be characteristic of *Ephialtes*.

SECTION 1.—*Thorax and legs with white or pale yellow markings.*

*Lampronota* [scutellaris, Cress. Trans. Am. Ent. Soc. iii. p. 161.]—♀. —Black. *Head* very finely punctate, less densely on the vertex, very densely on the face, which is covered with sparse, cinereous pubescence. Orbits narrowly white from the top of the vertex nearly to the mouth. Clypeus, mandibles except their teeth, and palpi, white; the clypeus sometimes pale dull rufous. Antennæ  $\frac{4}{5}$  as long as the body, brown-black, dull rufous beneath towards the tip. *Thorax* subopaque with fine dense punctures, the metathorax more coarsely rugoso-punctate, the two normal longitudinal carinæ represented only by a single obtusely impressed stria. Tegulae and a spot before them, a short line under the front wing, an elongate robust line generally widened above near the tip and overlying the humeral suture nearly to its tip, a large Y-shaped spot on each side of the meso-sternum (the prongs of the Y very rarely subobsolete), a geminate spot on the hind end of the mesosternum very rarely absent, and the sides and tip of the scutel, all white. Disk of the scutel except in a single specimen, meso- and meta-sternum below and half way up their pleura, and occasionally an indistinct vitta above the front wing, all rufous. *Abdomen* subclavate when viewed from above, owing to the length of the 1st joint and joints 6-8 being chiefly retracted. Joint 1 with only a basal trace of the normal carinæ,  $2\frac{1}{2}$  times as long as wide and  $\frac{1}{2}$  wider behind than in front, with the sides straight. Joints 2-4 with their sides parallel, 2 and 3 equally long and each  $\frac{1}{2}$  shorter than 1, 4 shorter by  $\frac{1}{2}$  than 3, and 5 about  $\frac{1}{2}$  as long as 4. All the visible joints very finely, closely and evenly rugoso-punctate so as to be subopaque. Ovipositor nearly as long as the abdomen, piceous; sheaths broad, tapered to a point, and with very fine, short, dense ciliations. Venter with the sutures broadly whitish. *Legs* pale rufous, the 4 front coxæ except the lower surface of the middle ones, both trochanters of the 4 front legs, the terminal one of the hind legs, and also the hind knees, all whitish. Tips of the 4 front tarsi, extreme tips of the hind femora up to the whitish knees, an exterior vitta on the hind tibia extending from the knee to the tip and towards the tip extending all around, and the whole of the hind tarsi, all pale fuscous. Tarsal claws with very long pectinations. *Wings* subhyaline; veins black, radius rufous; stigma rufous edged with black, and 3 times as long as wide. Areolet rhomboidal, the peduncle as long as the rhomb. Length ♀ .41-.45 inch. Front wing ♀ .35-.37 inch. Ovipos. .27 inch.

Seven ♀ ; ♂ unknown to me.

*Lampronota* [tegularis, Cress., Trans. Am. Ent. Soc. iii. p. 163].—♂.—Differs only from the preceding ♀ as follows:—1. The entire face except the lateral foveæ at tip, the entire clypeus, a short orbit extending above

the antennæ, and a spot on the lower surface of the 1st antennal joint, are all white. Except the above spot, the antennæ are brown-black immaculate. 2. The thorax is more coarsely sculptured, and, except that the tegulæ and a minute line under the front wing are white, all the white and rufous markings of [*scutellaris*, Cress.] are absent. 5. The abdomen is more coarsely punctate, elongate-oval instead of clavate, and of course more elongate, the terminal joints being more opened out and the few last subglabrous and polished. Joints 1-3 are proportioned as in [*scutellaris*], 4-7 each about  $\frac{1}{4}$  shorter than the preceding so that 7 is only  $\frac{1}{2}$  as long as 3, 8 small. 4. The 4 front legs differ in all the coxæ and trochanters being milk-white immaculate, and in the knees and a basal exterior vitta on all 4 tibiæ and the basal  $\frac{1}{2}$  of all 4 tarsi being whitish. In the hind legs the coxæ are black lightly tipped with white, the basal trochanters black lightly blotched with white, the terminal ones *vice versa*; the femora, the terminal  $\frac{3}{4}$  of the tibia and the whole of the tarsi black, the basal  $\frac{2}{3}$  of the tibiæ white; claws simple. 5. The stigma is black, and the radius only basally rufous. Length ♂ .44 inch. Front wing ♂ .28 inch.

One ♀; ♀ unknown to me. Besides the tarsal claws being unarmed, the total absence of the large white spot before the front wing and the very different coloration of the sternum, which are not, so far as I am aware, sexual characters in *Ichneumonidæ*, would forbid this ♂ being correlated with the preceding ♀. On the other hand, the coloration of the face, antennæ, scutel, and legs, are common sexual characters here, of which many examples occur in *Bassus*, *Ichneumon*, *Pimpla*, etc.

*Lampronota amphimilena*, n. sp.—♂.—Differs from [*scutellaris*, Cress.] ♀ only as follows: 1. The white or whitish markings of the latter, whether on the body or on the legs, become here yellow or are obsolete. 2. The face up to the front except the lateral foveæ at the tip, and the entire clypeus, is pale yellow, with a triangular black spot beneath each antenna and an acute black line descending from between the antennæ nearly to the clypeus. The antennæ are brown-black immaculate, except that there is a small pale spot on the basal joint below. 3. Except the 3 pale spots under and before the front wing, the largest one of which is hooked backwards near the tip, and except also that there is a minute pale vitta on each side of the scutel, the thorax is immaculate and more coarsely sculptured. 4. The 2 longitudinal carinæ of the metathorax are distinct but low, and diverge from the first  $\frac{2}{3}$  of their length, the enclosed space being perfectly level and without any stria. 5. The abdominal joints are proportioned as in [*tegularis*], but the anterior angle of 2 is reflexed into a tubercle, and the spiracles of 1-3 project in a lateral tubercle, each less so than the preceding. 6. Except the basal  $\frac{1}{3}$  of joint 1, the terminal  $\frac{1}{2}$  of 5, and the whole of 6-8, the abdomen is rufous. The venter is pale dull rufous except towards the tip and at the extreme base. 7. Instead of the middle coxæ being rufous beneath, they are black on their interior base.



In the hind legs the coxæ and the basal trochanters are black lightly tipped with whitish, the other trochanters pale yellow basally marked with black, and the rest of the leg black except that the knees and the basal  $\frac{3}{4}$  of the tibiæ are pale yellow; claws simple. 8. The peduncle of the areolet is only  $\frac{1}{2}$  as long as the rhomb. Length ♂ .52 inch. Front wing ♂ .35 inch.

One ♂; ♀ unknown to me. Neglecting the difference in the claws, this ♂ could scarcely be referred to [*scutellaris*] ♀ on account of the wide, rufous band on the abdomen, which, so far as I know, is not a sexual character in this family.

[This is probably only a variety of *L. varia*, Cress., Trans. Am. Ent. Soc. iii. p. 164.—CRESSON.]

*Lampronota* [*frigida*, Cress., Canadian Entomologist, i. p. 36].—♂.—Differs from [*scutellaris*, Cress.] ♂ only as follows:—1. The white markings of the latter, whether on the body or the legs, become here pale yellow or are obsolete. 2. The entire face, except the lateral foveæ at the tip, and the entire clypeus, are pale yellow, and the orbits are pale yellow up to the top of the vertex, but are interrupted opposite the ocelli by a space rather longer than they are wide, so as to leave a pale yellow dot on the vertex. 3. The antennæ are full as long as the body, brown-black above and below, with the 1st and 2d joints pale yellow beneath. 4. The pale spot before the front wing is prolonged in a slender, pointed line along the lower edge of the humeral suture nearly to its tip, and above the humeral suture there is only a small elongate spot opposite the tip of the preceding. The tegulæ and a short line under the wing, the anterior border of the collare, and the entire mesosternum half way up its pleura, with the exception of its declivous surface in front and a large geminate black spot behind, are also pale yellow. The rest of the thorax is black. 5. The metathorax is entirely opaque, and the longitudinal carinæ are entirely unrepresented. 6. The abdomen is regularly elongate-oval, and the joints are proportioned and sculptured nearly as in [*tegularis*, Cress.], but the terminal  $\frac{1}{4}$  of 1 and the whole of 2-8, except an obfuscation on 8, are rufous. Except the basal  $\frac{1}{4}$  of 1, the whole venter is dull pale rufous. 7. The 4 front legs are pale rufous, with all their coxæ and trochanters pale yellow. The hind legs are pale rufous, with the terminal  $\frac{1}{2}$  of their coxæ and the terminal trochanters pale yellow; claws simple. 8. The stigma is black, basally tinged with rufous; and the peduncle of the areolet is scarcely  $\frac{1}{2}$  as long as the rhomb. Length ♂ .35 inch. Front wing ♂ .25 inch.

One ♂; ♀ unknown to me. Sufficiently distinct from all described N. A. species, except the following, by the interrupted orbits.

*Lampronota interpellata*, n. sp.—♂.—Differs from [*scutellaris*, Cress.] ♀ only as follows:—1. The white markings of the latter, whether on the

body or the legs, become here pale yellow or are obsolete. 2. The entire face, except the two foveæ at the tip, and the entire clypeus, are yellow, and the orbits are pale yellow up to the top of the vertex, but are interrupted just below the ocelli by a space twice as long as they are wide. Beneath each antenna is a minute black triangle, and from between the antennæ there descends half way to the clypeus a capillary black line. 3. The antennæ are brown-black immaculate, and have on the 1st joint below a small, pale dull yellow spot. 4. The pale spot before the front wing is prolonged in a slender, pointed line along the lower edge of the humeral suture nearly to its tip, and above the humeral suture there is only a very minute, elongate spot opposite the tip of the preceding. The tegulæ, a short line under the wing, and a narrow line on the anterior border of the collar, are also pale yellow; but the rest of the thorax is black. 5. The metathorax is entirely opaque. 6. The abdomen has the sides of joints 2-6 exactly parallel, and the terminal joints being more opened out are seen to be subpolished. Joint 1 is only twice as long as wide, and twice as wide behind as before, with its sides straight. Joints 2 and 3, but especially 2, have each a pair of subobsolete tubercles similar to those of *Ephialtes*, and are each  $\frac{1}{3}$  shorter than 1, and  $\frac{1}{3}$  longer than wide, 4 shorter by  $\frac{1}{4}$  than 3, 5-7 each  $\frac{1}{2}$  as long as 3, and 8 concealed. The terminal  $\frac{1}{5}$  of 1 and the terminal  $\frac{1}{3}$  of 2-4 are rufous, the rest of the abdomen black. Venter mostly dull pale rufous. 7. The 4 front legs are rufous, with all their coxæ and trochanters pale yellow. The hind legs are rufous, their coxæ and basal trochanters all black, with the extreme tips whitish, and their terminal trochanters rufous above and pale yellow below; claws simple. 8. The stigma is black with its disk dull rufous, and the peduncle of the areolet is scarcely  $\frac{1}{3}$  as long as the rhomb. Length ♂ .34 inch. Front wing ♂ .24 inch.

One ♂; ♀ unknown to me. Very near the preceding, but distinguished at once by the nearly black abdomen and by numerous other characters. The interrupted orbits separate it at once from all other described N. A. species.

*Lampronota pietiventris*, n. sp.—♂.—Differs from [*scutellaris*, Cress.] ♀ only as follows:—1. The white markings of the latter, whether on the thorax or the legs, become here yellowish-white or are obsolete. 2. The entire head is black, except that the clypeus all but the tip which is more or less of it rufous, the palpi, and the mandibles all but their black teeth, are whitish. 3. The antennæ are brown-black immaculate. 4. The tegulæ and a minute spot before the front wing are whitish, but the rest of the thorax is black. 5. The metathorax is entirely opaque. 6. The abdomen is regularly elongate-oval and the terminal joints are subpolished. Joint 1 is only twice as long as wide,  $\frac{1}{2}$  wider behind than before, with its sides straight. Joints 2 and 3 each  $\frac{1}{3}$  shorter than 1, but are no longer than wide, 4-7 are each about  $\frac{1}{5}$  shorter than the preceding joint, and 8 is scarcely visible. On 2 there is a pair of pretty distinct tubercles, and a subobsolete pair on 3. The extreme tip of joint 3 and the whole of 4 and 5,

except a medial black band which on 5 is sometimes interrupted, rufous. The terminal  $\frac{1}{2}$  of 6 obscurely rufous. Venter yellow, with an abbreviated, lateral, fuscous vitta on each joint, the entire base of 1 black and the two or three last joints mostly fuscous. 7. The legs are rufous, the front coxæ and trochanters yellowish; in the middle and hind legs the coxæ and the basal trochanters are black tipped with yellowish and the terminal trochanters *vice versa*. Claws simple. 8. The stigma is black, and the petiole of the areolet is only  $\frac{1}{3}$  as long as the rhomb. Length ♂ .35-.39 inch. Front wing ♂ .26-.27 inch.

Two ♂; ♀ unknown. Very like the preceding, but sufficiently distinct by the black face, the black middle coxæ, and the different fasciation of the abdomen.

**Lampronota breviventris**, n. sp., ♀.—Differs from [*scutellaris*, Cress.] ♀ only as follows:—1. The white markings of the latter become here yellowish-white or are obsolete. 2. The entire head is black, save that the clypeus is rufous, and the palpi and mandibles, except their black tips, whitish. 3. The antennæ are brown-black immaculate and only  $\frac{2}{3}$  as long as the body. 4. The tegulæ and a minute spot before them are whitish, but the rest of the thorax is black. 5. The metathorax is perfectly opaque, and its two carinæ are pretty distinct except towards the tip. 6. The abdomen is regularly oval, and the terminal joints are subpolished. Joint 1 is only  $\frac{3}{4}$  longer than wide,  $2\frac{1}{2}$  times as wide behind as before, with its sides straight  $\frac{2}{3}$  of the way from the tip to the base, whence they converge more rapidly. Joint 2 is  $\frac{1}{2}$  shorter than 1, but is scarcely as long as wide; 3 is a trifle shorter than 2 and  $\frac{1}{6}$  shorter than wide, and 4-7 regularly and rapidly diminish in length. On joints 2 and 3 there is a pretty distinct pair of the typical tubercles. Basal  $\frac{2}{3}$  of joint 1 black; the rest of the abdomen rufous. Ovipositor  $\frac{1}{4}$  longer than the body, bright rufous, piceous at the extreme tip; sheaths black, very slender, and of uniform width throughout. Venter yellowish, with an abbreviated, lateral, fuscous vitta on joints 2-4; joint 6 slightly projecting beyond the tip of the dorsum. 7. The legs are rufous immaculate. Claws simple. 8. The stigma is black and the petiole of the areolet is very short. Bullæ C and D widely separated, and the 2d recurrent vein scarcely biangulated. Length ♀ .37 inch. Front wing ♀ .26 inch. Ovipos. .45 inch.

One ♀; ♂ unknown to me. But for the differently colored abdomen, and especially the difference in the bullæ, this might be taken for ♀ of *pictiventris*. Differs from all the species but *pictiventris* and *nigrita* by the shortness of abdominal joints 2 and 3, and from all without exception by the bullæ C and D not being confluent. A similar anomaly in these bullæ occurs in *Pimpla annulipes*, Brullé.

SECTION 2.—*Thorax and legs without white or pale yellow markings.*

*Lampronota [americana]*, Cress., Trans. Am. Ent. Soc. iii. p. 164].—♀.—Black. *Head* subopaque, densely and rather coarsely punctate. Clypeus and palpi dull rufous, the clypeus polished. Mandibles piceous. Antennæ brown-black,  $\frac{4}{5}$  as long as the body. *Thorax* subopaque, confluent and rather coarsely punctate; metathorax opaque, coarsely rugoso-punctate, the longitudinal carinæ obsolete. *Abdomen* elongate-ovate, almost microscopically punctate, subpolished; joint 1 slightly rugose, about  $2\frac{1}{2}$  times as long as wide,  $\frac{1}{2}$  wider behind than before, its sides straight, the usual carinæ fading out at  $\frac{1}{3}$  the way to the tip; 2 and 3 each  $\frac{1}{4}$  shorter than 1, and  $\frac{1}{2}$  longer than wide; 4 shorter than 3 by  $\frac{2}{3}$ ; the remaining joints rapidly shortened. Basal  $\frac{3}{4}$  of 1 black, the rest of abdomen rufous. Venter pale dull rufous except the basal  $\frac{1}{4}$  of 1; 6 triangularly prolonged beyond the tip by a space nearly equal to  $\frac{1}{2}$  the breadth of the abdomen. Ovipositor as long as the body, piceous; sheaths black and of uniform width throughout. *Legs* black, with the front tarsi, the tip of the front tibiæ and sometimes the whole of them and the knees as well, all dull rufous. Claws simple. *Wings* tinged with yellowish smoky; veins black; stigma black tinged with rufous at base, and 3 times as long as wide. Areolet with the peduncle  $\frac{2}{3}$  as long as the rhomb. Length ♀ .47-.50 inch. Front wing ♀ .35-.39 inch. Ovipos. .50-.53 inch.

Two ♀; ♂ unknown to me. Distinct from all the preceding, and from *rufithorax*, Cress. (Cuba), by the total absence of any white or yellow markings. Comes very near *montana*, Cress., but differs by the 4 hind legs being entirely black, by the wings not being fuliginous, and probably by the unusual prolongation of the 6th ventral, which is not referred to in the description of that species.

*Lampronota imitatrix*, n. sp.—♀—Differs only as follows from the preceding:—1. The size is  $\frac{1}{4}$  smaller. 2. The tegulæ are brownish-white. 3. The longitudinal carinæ of the metathorax are represented by two parallel striæ confluent in front and evanescent  $\frac{2}{3}$  of the way to the semilunar carina. 4. The abdomen is distinctly but very finely punctate; joint 1 is twice as wide behind as before, and the spiracle projects laterally in a distinct tooth, the sides being otherwise straight; 2 and 3 are each only  $\frac{1}{4}$  longer than wide, and 4 is  $\frac{2}{3}$  as long as 3. 5. Abdominal joints 5-8 are black both dorsally and ventrally, joint 1 being colored as in [*americana*, Cress.] 6. The 6th ventral is not unusually prolonged. 7. The ovipositor is pale rufous, and is a little shorter than the body. 8. The legs are entirely pale rufous. 9. The wings are subhyaline, the radius pale rufous, and the stigma black, brownish-white at the extreme base and rufous at the extreme tip. The peduncle of the areolet is scarcely  $\frac{1}{2}$  as long as the rhomb. Length ♀ .35 inch. Front wing ♀ .23 inch. Ovipos. .29 inch.

One ♀; ♂ unknown to me. Distinct from *rufithorax*, Cress., and from all the preceding but [*americana*, Cress.], by the absence of pale markings, and well separated from [*americana*,

Cress.] by the 3d, 5th and 7th characters given above. From *montana*, Cress., it differs in the coxæ and trochanters being all rufous not black, by the wings being subhyaline not fuliginous, and by the black tip of the abdomen.

*Lampronota [rubrica*, Cress., Trans. Amer. Ent. Soc. iii. p. 165].—♀. — Differs only as follows from [*americana*, Cress.]:—1. The size is  $\frac{1}{2}$  smaller. 2. The mandibles are dull rufous, except the tips of their teeth which are black. 3. The orbits are white from the insertion of the antennæ to the hind end of the vertex. 4. The scutel, the hind  $\frac{1}{2}$  of the mesothoracic pleura, and the entire metathorax except its anterior edge above, are all rufous; and the tegulæ are brownish-white. 5. The longitudinal carinæ of the metathorax are represented by 2 parallel striæ confluent in front and behind attaining the semilunar carina. 6. The abdomen is subclavate, and a spiraculiferous tubercle projects very slightly on each side of joint 1. 7. The abdominal joint 1 is entirely rufous, but joints 6-8 are black. Venter yellowish-white. 8. The ovipositor is rufous, and proportionally  $\frac{1}{5}$  longer. 9. The legs are pale rufous, with the middle tarsi and the hind tibiæ and tarsi obfuscated. 10. The wings are subhyaline, with the radius rufous; the stigma is black, brownish-white on its basal  $\frac{1}{3}$ , and only  $2\frac{1}{2}$  times as long as wide. Areolet scarcely peduncled. Length ♀ .23-.25 inch. Front wing ♀ .18 inch. Ovipos. .30 inch.

Two ♀; ♂ unknown to me. Sufficiently distinct from all described N. A. species by the black mesothorax and rufous scutellum.

*Lampronota nigrita*, [Walsh, Trans. Am. Ent. Soc. iii. p. 159].—♂♀.—Differ from [*americana*, Cress.] ♀ only as follows:—1. The whole body is black, much more robust, and, except the abdomen, obviously pubescent. 2. The head is opaque and, including the mouth, immaculate; the face with long pubescence, and the clypeus opaque and punctate. 3. The metathorax is punctured like the mesothorax, and in ♂ the tegulæ are sometimes pale dull rufous. 4. The abdomen is immaculate, oval, about 4 times as long as wide ♀, 5 times ♂, subpolished, with very minute, dense punctures, more sparse towards the tip and tips of the joints. Joint 1 with some rather coarse longitudinal rugæ near the tip, its sides straight save that they are slightly incurved at the extreme base and tip, especially ♀; ♀  $\frac{1}{2}$  ♂  $\frac{3}{4}$  longer than wide, ♂ ♀  $\frac{3}{4}$  wider behind than before. Joint 2 shorter by  $\frac{1}{5}$  than wide ♀, square ♂; joint 3 ♂ ♀ a little shorter than 2; the rest rapidly, especially in ♀, shorter and shorter. Ovipositor  $\frac{1}{3}$  as long as the body, piceous, basally curved upwards; sheaths black, not tapered, as wide as the last tarsal joint of the hind legs. Venter blackish, in ♀ a little excavated and strongly carinate longitudinally to the tip, with joint 6 no longer than the dorsum, in ♂ excavated. 5. The legs ♀ are black immaculate, in a bred ♀ rufous except all the coxæ and trochanters and the 4 front femora, the tibiæ and tarsi with a whitish reflection from dense, short pubescence. Legs ♂ black, the extreme tips of all the femo-

ra, and sometimes in the 4 front legs their upper surface also, and always all the tibiæ and tarsi, dull pale rufous. ♂ ♀ Claws simple. 6. The wings ♂ ♀ are subhyaline, tinged more or less with smoky yellow; veins and stigma black. Areolet rhomboidal, the 2d recurrent vein entering it rather nearer the base than the tip of the wing, the peduncle about  $\frac{1}{2}$  as long as the rhomb, and the bulla CD without any black dot. Length ♂ .37-.50, ♀ .35-.45 inch. Front wing ♂ .29-.37, ♀ .28-.36 inch. Ovipos. .11-.16 inch.

Two ♂, four ♀. One ♂ was captured Mar. 4, and one ♀ captured Ap. 19, and another ♀ was bred from a small lepidopterous pupa, inside the split integument of which it had spun its white cocoon. Distinct from all the preceding by its immaculate black body, and from all but *pictiventris* and *breviventris* by the short intermediate joints of its abdomen.

[This belongs to the genus *Arenetra*, Holmgren. —CRESSON.]

#### GENUS GLYPTA, Gravenhorst.

In this well-marked genus the bullæ are but three in number, C, D, and E; and sometimes but two, CD and E, C and D being usually separated only by a minute black dot, which often terminates in the usual stump of a vein, while occasionally, but only in those species where the salient angle of the biangulated 2d recurrent vein is obsolete, the black dot is obsolete and C and D become completely confluent. C and D are located well forwards on their vein, and E pretty close to the angle of its vein. In both those two species of which I possess numerous specimens, the coloration, especially that of the legs, is very constant. In one of the two the size is also remarkably constant, while in the other it varies considerably. On the whole, *Glypta* may be considered as a pretty constant genus. The colors are black and rufous with more or less white markings.

SECTION I.—*Hind legs not annulate with white. Abdomen black. Clypeus white.*

*Glypta simplicipes*, [Walsh, Trans. Am. Ent. Soc. iii. p. 156.]—♀.—Black. *Head* rather coarsely punctate, sparsely on the vertex which is subpolished, and more closely on the face which is subpubescent and opaque. Face with a wide, flat, discoidal tubercle, more obvious in some specimens than in others, but always opaque and sculptured like the face. Clypeus and mandibles, except their teeth, white. Labrum piceous, occasionally rufous. Palpi very pale rufous. Antennæ  $\frac{3}{4}$  as long as the body, brown-black, dull rufous beneath except the scape. *Thorax* subopaque, rather coarsely punctate; metathorax more coarsely rugoso-punctate and with the carinæ distinct. Tegulæ, an acutely pointed line under the humeral

suture, usually extending nearly to its tip and robustly clavate at base, occasionally extending only half way to its tip, and a terminal quadrangular spot on the scutel, all white. *Abdomen* subopaque, rather coarsely punctate, polished and subglabrous towards the tip. Joint 1 longer by  $\frac{1}{2}$  than broad and  $\frac{1}{3}$  wider behind than before, with the two usual carinæ lofty on the basal  $\frac{1}{4}$ , thence subobsolete. Ovipositor scarcely  $\frac{2}{3}$  as long as the body, rufous, darker at base; sheaths black, gradually and slowly tapered, about as wide at base as the last tarsal joint of the hind leg. Venter whitish, sometimes blackish towards the tip. *Legs* pale bright rufous, the anterior coxæ very rarely blotched with white in front. Hind legs with the terminal  $\frac{1}{2}$  or sometimes  $\frac{3}{4}$  or occasionally  $\frac{1}{4}$  of the tibiæ gradually black; tarsi black; extreme tip of the femora very rarely fuscous. *Wings* subhyaline tinged with smoky yellow; veins black; stigma dark rufous edged with black, sometimes all black; 2d recurrent vein distinctly biangulated. Length ♀ .37-.40 inch. Front wing ♀ .31-.34 inch. Ovipos. .26-.28 inch.

Fourteen ♀; ♂ unknown to me. Distinguishable from *varipes*, Cress., and from all other species here described but *albiscutellaris* by its white scutel, and from that by its hind legs not being annulate with black and white.

SECTION 2.—*Hind legs multiannulate with black and white. Abdomen and clypeus black.*

*Glypta tuberculifrons*, [Walsh, Trans. Am. Ent. Soc. iii. p. 152.].—♂ ♀.—Differ from *simplicipes* only as follows:—1. The tubercle on the face is large and obvious, varying in prominence but generally semicircular on a profile view, its tip always polished and sparsely punctate. 2. The clypeus and mandibles are entirely black, the clypeus with a small, subpolished, flattish tubercle on the middle of its anterior edge. 3. The thorax is subpolished and less strongly sculptured. The white line under the humeral suture never extends further than half way to the tip, and sometimes less, the scutel is immaculate, and the metathoracic pleura where it adjoins the coxa is always rufous for a small space. 4. The venter is more generally blackish. 5. The ovipositor is proportionally a little shorter, and the sheaths are basally  $1\frac{1}{2}$ -2 times as wide as the last tarsal joint of the hind leg, and much more suddenly tapered. 6. The legs are pale bright rufous, but in the front legs the coxæ and both trochanters are white, the coxæ and basal trochanters sometimes lightly spotted, or very rarely, and in ♀ only blotched strongly, with rufous. In the middle leg the 2d trochanter is white, the tibia has its basal  $\frac{1}{5}$  whitish and its extreme tip black, the intervening space rufous internally and externally whitish, with a pale dusky semi-fascia at the basal end; tarsi white, tips of all the joints dusky. In the hind leg the terminal  $\frac{1}{4}$  of the femur is black, the tibiæ are white with their 2d and terminal  $\frac{1}{5}$  black, and the tarsi are black with the basal  $\frac{1}{2}$ - $\frac{1}{3}$  of joints 1-3 white. Spurs of 4 hind legs white tipped with black. 7. The stigma is black, the base and occasionally the tip dull



rufous, the radius is dull rufous, and the salient angle in the biangulated 2d recurrent vein is subobsolete or obsolete. Length ♂ .51-.55 inch; ♀ .33-.56 inch. Front wing ♂ .36-.37 inch; ♀ .27-.40 inch. Ovipos. .22-.30 inch.

Three ♂; eight ♀. In this species there are absolutely no sexual variations, except that the white markings of the legs are, as usual, brighter in ♂. Comes near *varipes*, Cress., but that species is expressly stated to have all the coxæ ferruginous, and nothing is said of any of its trochanters being other than ferruginous. Moreover its ovipositor is "about as long as the body," instead of being little more than half as long, and the description of the hind tibiæ does not agree at all.

*Glypta diversipes*, n. sp.—♀.—Differs from *simplicipes* ♀ only as follows:—1. The tubercle on the face is large and obvious, but not near as prominent as in *tuberculifrons*, and its tip is polished and sparsely punctate. 2. The clypeus is black, the mandibles rufous including their teeth, and the palpi are whitish. Labrum not seen. Antennæ brown-black immaculate. 3. The thorax is subpolished and less strongly sculptured, the white line under the humeral suture is less robust and only extends half way to tip of the suture, and the scutel is immaculate. 4. The carinæ on abdominal joint 1 extend distinctly  $\frac{2}{3}$  of the way to the tip, whence they become subsolete. 5. The ovipositor is full  $\frac{2}{3}$  as long as the body, and is black except the rufous tip. 6. The legs are pale rufous. In the 4 front legs the coxæ, both trochanters, the knees, the exterior face of the tibiæ, and the entire tarsi except their fuscous tips, are all white; but the middle coxæ are anteriorly rufous except at tip. In the hind legs the terminal  $\frac{1}{2}$  of the basal trochanter, and the whole of the second one, are white; the extreme tips of the femora are fuscous; the tibiæ are white with their terminal  $\frac{1}{2}$  interiorly dusky, the dusky vitta prolonged a little laterally at its base so as to foreshadow a black annulus, and on the terminal  $\frac{1}{2}$  forming a complete black annulus; and the tarsi are black with the basal  $\frac{1}{2}$ — $\frac{1}{3}$  of joints 1-3 white. Spurs of all the legs white. 7. The wings are hyaline, veins black, radius rufous, stigma pale rufous edged with black, the salient angle in the biangulated 2d recurrent vein obsolete, and the bullæ C and D confluent, with an exterior dusky dot at the point of confluence. Length ♀ .30 inch. Front wing ♀ .25 inch. Ovipos. .21 inch.

One ♀; ♂ unknown to me. Very near *varipes*, Cress., but differs in the 4 front coxæ and trochanters being all more or less white. The unusual coloration of the hind tibia agrees very well with that species.

*Glypta rufipluralis*, n. sp.—♂.—Differs from *simplicipes* ♀ only as follows:—1. The tubercle on the face is large and obvious, but not near as prominent as in *tuberculifrons*, and its tip is polished and sparsely punctate. 2. The clypeus and mandibles are black and the palpi whitish.

Labrum not seen. The antennæ are full  $\frac{4}{5}$  as long as the body. 3. The thorax is subpolished and less strongly sculptured; the white line before the front wing becomes a mere white spot; the scutel is immaculate; and the pleura is rufous half way up from the middle and hind coxæ. 4. The carinæ on abdominal joint 1 extend distinctly  $\frac{2}{3}$  of the way to the tip, whence they become subobsolete; and the terminal  $\frac{1}{3}$  of 1 and the whole of 2, except an obfuscation on each of the 3 tubercles, are rufous. 5. . . . 6. The legs are pale rufous. In the front legs the coxæ and both trochanters are white. In the middle legs the 2d trochanter is white and the tarsi dusky, with the basal  $\frac{1}{2}$ - $\frac{1}{3}$  of joints 1-3 white. And in the hind legs the extreme tip of the femora is black, the tibiæ are white with their 2d and terminal  $\frac{1}{5}$  black, and the tarsi are black with the extreme base of joints 1-3 white. Spurs of all 4 hind legs white, lightly tipped with fuscous. 7. The wings are subhyaline, veins black, radius rufous, stigma pale rufous edged with black. the salient angle of the 2d recurrent vein obsolete, and the bullæ C and D confluent, with a minute, exterior, dusky dot at the imaginary point of confluence. Length ♂ .25 inch. Front wing ♂ .19 inch.

One ♂; ♀ unknown to me. Might be taken for the ♂ of *diversipes*, n. sp., but that it differs in its black mandibles, its partly rufous thorax and abdomen, and in the coloration of the legs. From *varipes*, Cress., it differs still more widely than does *diversipes*. I observe that in *tuberculifrons*, ♂ ♀ the rufescence of the pleura is perfectly constant throughout my eleven specimens.

*Glypta rufiscutellaris*, [Walsh, Trans. Am. Ent. Soc. iii. p. 153.]-♂♀.—Differ from *simplicipes* ♀ only as follows:—1. The tubercle on the face is large and obvious, but not near as prominent as in *tuberculifrons*, and its tip is polished and sparsely punctate. The clypeus and mandibles are black and the palpi whitish. Labrum not seen. Antennæ generally brown-black immaculate, rarely dull rufous beneath in the middle. 3. The thorax is subpolished and less coarsely punctate; the white line under the humeral suture almost always extends nearly to its tip, but is occasionally abbreviated terminally by full one-half; and the whole scutellum or occasionally only the terminal  $\frac{1}{2}$ , the lateral lobes of the mesonotum generally, the lower face of the sternum generally, and always about half way up its pleura from the middle and hind coxæ, are all rufous. 4. The carinæ on abdominal joint 1 extend full  $\frac{3}{4}$  of the way to its tip, whence they become subobsolete. 5. The ovipositor is black except its rufous tip, and the sheaths are a little wider at base than the last tarsal joint of the hind leg. 6. The legs are pale rufous. In the front legs the coxæ, both trochanters, the knees, the entire face of the tibiæ, and the entire tarsi except their fuscous tips, are all white. In the middle legs the extreme tip of the coxæ, and sometimes, in addition, the whole interior face, both trochanters, and the knees, are all white; the tibiæ are whitish with their 2d and terminal  $\frac{1}{5}$  very pale dusky; and the tarsi are

dusky with the basal  $\frac{2}{3}$ – $\frac{1}{3}$  of joints 1–5 white. In the hind legs the 2d trochanter and the knees are white; the extreme tip of the femora as far as the white knees is black; the tibiæ are white with their 2d and terminal  $\frac{1}{5}$  black, the two black annuli more or less elongated towards each other on the interior face; and the tarsi are black with the basal  $\frac{1}{2}$ – $\frac{1}{3}$  of joints 1–5 white. Spurs of all 4 hind legs white. 7. The wings are subhyaline; veins black, radius rufous; stigma pale or dark rufous edged with black, sometimes entirely black; salient angle of the 2d recurrent vein obsolete, and the bullæ C and D confluent, with a minute, exterior, dusky dot at the point of confluence. Length ♂ .17 inch; ♀ .23–.38 inch. Front wing ♂ .15 inch; ♀ .18–.33 inch. Ovipos. .13–.20 inch.

One ♂, bred Aug. 15 from some of the Microlepidoptera that burrow in the gall *Sallicis brassicoides*, Walsh; five ♀, one bred Apr. 5 from the gall on the *Solidago* inhabited by *Euryptychia saligneana*, Clemens, another Sept. 20 from Microlepidopterous larva that mines the gall *Quercus prunus*, Walsh, and a third found dead in the Cecidomyidous gall *Salicis strobiloides*, O. S., where it had doubtless preyed on some of the Microlepidoptera that are inquilineous in that gall. In the first and last of the above galls I have repeatedly found a robust, bright orange-color larva enclosed in a tough, opaque, brown cocoon, which I have little doubt appertains to this species, though I failed to breed the imago from isolated specimens. This *Glypta* is very near both the preceding, but may be distinguished at once by the rufous scutellum, and by several minute but apparently constant characters. The variation in the coloration may perhaps be partly due to some of my bred specimens having been prematurely killed.

*Glypta albiscutellaris*, n.sp.—♂.—Differs from *simplicipes* ♀ only as follows:—1. The tubercle on the face is large and obvious, but not near as prominent as in *tuberculifrons*, and its tip is polished and sparsely punctate. 2. The clypeus and mandibles are black and the palpi whitish. Labrum not seen. Antennæ brown-black, dark reddish-brown except the scapus beneath. 3. The thorax is subpolished and less coarsely punctate; the white line under the humeral suture is wide and of nearly uniform width throughout and extends to the tip of the suture; and the scutellum and a narrow transverse line behind it are white. A broad vitta inside the origin of the front wing, the lower surface of the sternum and its pleura full half way up from the middle and hind coxæ, are all pale rufous, verging beneath upon white. Mesothoracic spiracle black. 4. The carinæ on abdominal joint 1 extend  $\frac{1}{2}$  way up to its tip, and are thence subobsolete. 5. . . . . 6. The 4 front legs are white with the tips of the tarsal joints lightly obfuscated. The hind legs are white with the femur pale bright rufous, except the knee which is white and the extreme tip before the knee which is black; tibiæ with their second  $\frac{1}{5}$  externally black, and their ter-

minal  $\frac{1}{3}$  black all around; tarsi black with the basal  $\frac{1}{2}$ — $\frac{3}{8}$  of joints 1–5 white. Spurs of all 6 legs white. 7. The wings are hyaline; veins black; stigma black, rufous at base; the 2d recurrent vein scarcely biangulated and with bullæ C and D confluent. Length ♂ .25 inch. Front wing ♂ .20 inch.

One ♂; ♀ unknown to me. Distinct from all N. A. *Glypta* but *simplicipes* by its white scutel, and from that species by its black clypeus, pale sternum and legs, etc.

SECTION 3.—*Hind legs multiannulate with white and black. Abdomen black. Clypeus white.*

*Glypta longiventris*, [Walsh, Trans. Am. Ent. Soc. iii. p. 154.]—♀.—Differs from *simplicipes* ♀ only as follows:—1. The tubercle on the face is large and obvious, but not near as prominent as in *tuberculifrons*, and its tip is polished and sparsely punctate. 2. The palpi are whitish, and the antennæ are dull rufous beneath only on their terminal  $\frac{1}{2}$ , and on the terminal  $\frac{1}{2}$  of joint 1 and the whole of joint 2. 3. The thorax is subpolished and less coarsely punctate; and the metathoracic carinæ, except the lunate area on the posterior declivity and the 2 longitudinal carinæ for  $\frac{2}{3}$  of the way to the lunate area, are obsolete. The scutel is immaculate, but the meso- and meta-sternum, and also the pleura for a small space above the middle and hind coxæ, are rufous. 4. The abdomen is longer and slenderer than usual, and the carinæ of joint 1 extend about  $\frac{1}{2}$  way to its tip, whence they gradually fade out. 5. The ovipositor is piceous, rufous at tip, full  $\frac{2}{3}$  as long as the body; and the sheaths are basally  $\frac{1}{2}$  wider than the last joint of the hind tarsus, and taper much towards the tip. 6. The legs are pale rufous. In the front legs the coxæ except some rufous blotches, both trochanters, the knees, the anterior face of the tibiæ, and the tarsi, are all white. In the middle legs both trochanters, the knees, the anterior face of the tibiæ except an external obfuscation on its 2d and terminal  $\frac{1}{3}$  and the spurs, are all white; and the tarsi are dusky, with the basal  $\frac{1}{2}$ — $\frac{3}{8}$  of joints 1–5 white. In the hind legs both the trochanters are white, the basal one with a median fuscous annulus; the extreme tip and a basal cloud on the femora are black; the tibiæ are white, with their 2d and terminal  $\frac{1}{3}$  black; and the tarsi are black, with the basal  $\frac{1}{2}$ — $\frac{3}{8}$  of joints 1–5 white; spurs blackish, white at base. 7. The wings are subhyaline; veins dusky, radius pale rufous; stigma pale rufous, whitish at base, the bounding vein in front dusky; 2d recurrent vein with its salient angle obsolete, and the bullæ C and D confluent.

The ♂ differs from ♀ as follows—1. The space between the origin of the mandibles and the eye, and sometimes the entire face  $\frac{2}{3}$  of the way to the antennæ, is white, as well as the clypeus. 2. The antennæ are beneath dull rufous throughout, except the scape which is either entirely white beneath, or has the basal  $\frac{1}{2}$  of joint 1 black. 3. The metathoracic carinæ are sometimes partially obsolete, precisely as in ♀, sometimes pretty distinct. 4. The entire prosternum and a line on the upper  $\frac{2}{3}$  of the anterior edge of the collare are white; and the rufous color on the meso- and me-

tathoracic pleura extends half way up to the wings. 5. The front coxæ have no rufous blotches; the middle coxæ are white with rufous blotches, instead of being rufous; the two obfuscations on the middle tibiæ are much more distinct; and in the hind legs the extreme tip of the coxa is white, the space intervening between the 2d and terminal  $\frac{1}{2}$  on the tibia is sometimes pale rufous instead of white, and the spurs are sometimes entirely white. Length ♂ .34-.37 inch; ♀ .33 inch. Front wing ♂ .23-.27 inch. Ovipos. .23 inch.

Two ♂; one ♀. Distinguishable from *varipes*, Cress., and from all the preceding but *simplicipes*, by its white clypeus, and from that species by its rufous sternum and multiannulate hind legs.

*Glypta ruficornis*, n. sp.—♂.—Differs from *simplicipes* ♀ only as follows:—1. The facial tubercle is very slightly polished and a trifle more prominent. 2. The mandibles are pale rufous with their teeth black, and the palpi are whitish. The antennæ are opaque rufous above and below, except joint 1 which is black and polished. 3. The thorax is subpolished and less strongly sculptured, the metathoracic carinæ distinct. The white line before the front wing is very short, and the scutel is immaculate. 4. The carinæ on abdominal joint 1 extend  $\frac{2}{3}$  of the way to the tip, whence they become subobsolete. 5. . . . 6. The legs are pale rufous; the 4 front legs with the coxæ, both trochanters, and the knees, white, and the spurs and tarsi whitish; the hind legs with the 2d trochanter white, the extreme tip of the femora black, the tibiæ white with their 2d and terminal  $\frac{1}{2}$  black, and the tarsi black with the basal  $\frac{1}{2}$ - $\frac{1}{4}$  of joints 1-5 white; spurs blackish. 7. The wings are subhyaline; veins black; stigma rufous edged with black, and the 2d recurrent vein with the salient angle obsolete, and bullæ C and D confluent. Length ♂ .27 inch. Front wing ♂ .22 inch.

One ♂; ♀ unknown to me. Distinct from *longiventris* by its rufous mandibles and antennæ, its black sternum, and the different ornamentation of its legs; from *varipes*, Cress., and all the preceding but *simplicipes* and *longiventris*, by its white clypeus; and from *simplicipes* by its rufous mandibles and antennæ, and its entirely different legs.

SECTION 4.—*Hind legs multiannulate with black and white. Abdomen black with white bands. Clypeus white.*

*Glypta* [scitula, Cress., Trans. Am. Ent. Soc. iii. p. 155.]—♀.—Head subglabrous, polished, scarcely pubescent; facial tubercle very small and imbedded in a carina which descends from between the antennæ nearly to the clypeus; general color black, with an orbit entirely surrounding the eye, the face except a minute elongate spot under each antennæ, the clypeus, the mandibles except their teeth, and the palpi, all white. An-

tennæ brown-black above, dull rufous below except the 1st joint which is black tipped below with white. Thorax sparsely and very finely punctate, polished, the carinæ of the metathorax obsolete. General color a pale bright rufous. Tegulæ white; lateral lobe of the mesonotum with a black vitta which occupies its disk and is edged internally by a white line, the terminal  $\frac{1}{3}$  of the lobe white and confluent with a broad white vitta which extends broadly below, and very narrowly above the humeral suture to its tip; middle lobe of the mesonotum with its terminal  $\frac{2}{3}$  black. Scutel white at its tip, with a round, discoidal, black spot on its highest part. Lower surface of the sternum with its medial suture black in front, and a small blackish spot behind the anterior acetabulum. Metathorax black above, laterally white with a black line on the anterior submargin; a curved, white, capillary line, confluent in front with a transversely oblong white spot behind the scutel, extends from the origin of one hind wing round the tip of the scutel to the origin of the other; and there is a transverse white line on the upper edge of the posterior declivity of the metathorax. *Abdomen* black, subpolished, with fine but not dense punctures; joint 1 longer by  $\frac{1}{4}$  than wide and twice as wide behind as before, with the usual carinæ obsolete, but with the same oblique, lateral striæ as joints 2-5; hind and lateral edge of 1-7 conspicuously white. Ovipositor  $\frac{1}{2}$  as long as the body, rufous; the sheaths black, basally  $\frac{1}{2}$  wider than the last tarsal joint of the hind leg, and tapered to the tip, which is obtuse, so as to be there of the same width as that joint. Venter whitish. *Legs* white. The 4 front legs with their femora very pale rufous. The hind legs, with the basal  $\frac{2}{3}$  of their coxæ and a lateral spot on the basal trochanter, black; femora bright pale rufous, with a basal cloud and their extreme tip, except the white knees, black; tibiæ with their second  $\frac{1}{5}$  laterally and their terminal  $\frac{1}{5}$  all round, black; tarsi dusky, except the basal  $\frac{1}{2}$  of joint 1. *Wings* subhyaline; veins black; stigma black, basally pale rufous: the 2d recurrent vein with its salient angle obsolete, and the bullæ C and D confluent and smaller than usual. Length ♀ .21 inch. Front wing ♀ .18 inch. Ovipos. .10 inch.

One ♀; ♂ unknown. This is one of the loveliest ichneumon-flies known to me, the black, red and white colors being most artistically arranged, so as to produce very striking contrasts. Entirely distinct from all other N. A. *Glypta* known to me by the banded abdomen.

#### GENUS PIMPLA, Fabr.

This very extensive genus will probably be eventually subdivided into two or more genera. At all events *melanocephala*, Brullé, with its pale rufous body, its subpentagonal areolet, its well-developed metathoracic carinæ, its long 1st abdominal joint, and its robust legs, is very unlike any of the species that here follow it. Remarkable sexual variations in the structure of the

1st abdominal joint occur in *conquisitor*, Say, *inquisitor*, Say, and *scriptifrons*, n. sp.; and the coloration of the coxæ and trochanters varies sexually in several other species according to the usual law, viz. that ♂ legs are lighter-colored than ♀ legs. The size varies enormously in *annulipes* and *conquisitor*, Say, and would probably be found to do so in other species also if we could generalize on an equally large number of specimens. The coloration, on the contrary, is very constant, especially in the legs. The bullæ are 5 in number, A placed above B on the terminal side of the areolet, the two being generally separated only by a very minute space, and in *annulipes* being confluent; C and D generally separated by a considerable space, but in the above-named species sometimes only by a minute space and sometimes not at all; and E rather further from the areolet than from the angle of the 1st recurrent vein.

#### SECTION 1.—*Areolet subpentagonal*.

*Pimpla melanocephala*, Brullé. —♀. — Yellowish-rufous. Head black, subopaque, with rather sparse, very fine punctures, polished on the vertex; a geminate, roundish, rufous spot transversely arranged under the antennæ. Mandibles except their teeth rufous. Palpi pale yellowish-rufous. Antennæ nearly as long as the body, brown-black, the scape and the extreme base of the flagellum yellowish-rufous beneath; 1st joint of flagellum  $2\frac{1}{2}$  times as long as wide. Thorax polished, with sparse, almost microscopic punctures, more close-set above; the mesonotum reddish-brown, except the scutellum and a line on each parapsidal groove. Metathorax (as in *Ichneumon* generally) with an elongate central area and lateral triangular area, which last however is not bisected by any transverse carina; the area on each side these last punctate and subopaque; the area of the posterior declivity hexagonal. Abdomen polished, with sparse, almost microscopic punctures; the normal tubercles subobsolete. Joint 1 narrower by  $\frac{1}{3}$  at the tip than the base of 2, full  $\frac{1}{2}$  longer than wide, its sides nearly parallel except on the basal  $\frac{1}{3}$  where they gradually converge; the usual 2 carina distinct and nearly attaining the tip. Joints 2-8 tinged with reddish-brown towards their base. Ovipositor rufous, about  $\frac{1}{2}$  as long as the body; sheaths black, very finely and sparsely pubescent, scarcely tapered,  $\frac{1}{2}$  as wide as the last tarsal joint of the hind legs. Legs short and robust. Tarsal claws robust, and, as well as the whole of the last joint of the hind tarsi, brown. Wings subhyaline, tinged with smoky yellow and at their extreme tip with fuscous; veins black, radius rufous; stigma rufous, its disk paler; areolet pentagonal, its anterior side only  $\frac{1}{2}$  as long as either of the adjacent sides, and the 2d recurrent vein entering it  $\frac{2}{3}$  of the way to its tip. Bullæ normal; C and D pretty wide apart. Length ♀ .37 (Brullé .56) inch. Front wing ♀ .33 inch. Ovipos. .17 (Brullé .20) inch.



The ♂, which was unknown to Brullé, only differs in the entire flagellum except the extreme tip being rufous beneath, in its 1st joint being only twice as long as wide, and in the stigma being entirely yellowish-rufous, the bounding veins black. Length ♂ .29-.39 inch. Front wing ♂ .25-.33 inch.

Two ♂; one ♀. Closely allied to, and perhaps identical with, *fuscicornis*, Brullé (Guadeloupe). Has a different habit, owing to its robust legs and elongate 1st abdominal joint, from any of my other species; but is probably, judging from the colorational pattern, allied to *cubensis*, Cress., which is expressly stated to have rather stout legs, and to five other Cuban species described by Mr. Cresson, none of which however have a black head like *melanocephala*. From *nigriceps*, Brullé (Chili), which has a black head, it is separated at once by having no transverse carina on abdominal joints 2-5. I have no other species of *Pimpla* that has the carinæ of the metathorax all well-developed.

[This belongs to the genus *Theronia*, Holmgren.—CRESSON.]

SECTION 2.—*Areolet rhomboidal or rhomboido-triangular.*

† *Hind tibiæ with no white bands.*

*Pimpla pedalis*, Cresson. — ♂ ♀. — It may be added to Mr. Cresson's somewhat brief description, based on a single ♂ specimen, that the palpi are often rufous towards their tips rather than fuscous, and generally have a rufous tinge throughout; and that the 1st joint of the flagellum is about  $3\frac{1}{2}$  times as long as wide in ♂, and 5 times as long as wide in ♀. The metathoracic carinæ are usually obsolete, with the exception of a small basal portion of the two middle ones. These last, however, are sometimes prolonged and crossed at tip by another one, so as to form a tolerably distinct central area, about  $\frac{1}{2}$  longer than wide. The wings in all my specimens are subhyaline, generally with a smoky-yellow tinge; the stigma is basally whitish; and the areolet is rhomboido-triangular, the 2d recurrent vein entering it  $\frac{2}{3}$  of the way from its basal to its terminal angle. Bullæ normal; C and D pretty wide apart. The legs are very bright (not "dull") rufous; it is only the basal  $\frac{2}{3}$ - $\frac{3}{4}$  of the front coxæ that is black in ♂, though in ♀ all but the very extreme tip, and sometimes the whole coxæ, is so; and the extreme tip of the hind femur is always black ♂ ♀. The abdomen, except towards its tip and on the terminal margin of the joints, is confluent punctate so as to have an opaque appearance, and the usual tubercles are subobsolete, and sometimes, especially in ♀, almost undistinguishable. Joint 1 is  $\frac{1}{2}$  longer than wide,  $\frac{3}{4}$  wider behind than before, with the usual two carinæ reaching  $\frac{3}{4}$  of the way to the tip, and enclosing between them on the basal  $\frac{1}{2}$  of the joint a polished, nearly circular excavation. The ovipositor is scarcely half as long as the body, piceous, and the sheaths are black with very short and very fine pubes-

cence, and half wider than the last tarsal joint of the hind leg. Length ♂ .37-.54 inch; ♀ .58-.64 inch. Front wing ♂ .31-.40 inch; ♀ .49-.53 inch. Ovipos. .28-.30 inch.

Seven ♂; three ♀. Mr. Cresson's specimen was probably alcoholic, which may account for the discrepancies in the color of the legs and wings. There are no other sexual distinctions than the usual stoutness of the ♂ antennæ, and the slight difference in the coloring of the front coxæ. The tegulæ in all my specimens are black, which is unusual in this genus. It is possible the ♂ of *pedalis* that Brullé has erroneously correlated with his ♀ *rufipes* from S. Am. At all events his brief description agrees with *pedalis*. The ♀ is very like *instigator* ♀ (Europe), but that species has rufous legs, with all the coxæ and trochanters and the hind tarsi black ♀.

*Pimpla* [pterelas, Say.]—♀.—Black. *Head* perfectly glabrous and highly polished. Palpi dull dark rufous. Antennæ  $\frac{2}{3}$  as long as the body, with the 1st joint of the flagellum  $3\frac{1}{2}$  times as long as wide, brown-black, tinged with rufous beneath towards their tips. *Thorax* polished, sparsely and finely punctate, glabrous on the mesosternum and its pleura; the two carinæ of the metathorax extending to the posterior declivity, the others obsolete. Tegulæ yellowish-white. *Abdomen* polished, rather coarsely and closely punctate except behind and on the tips of the joints, the usual tubercles pretty distinct. Joint 1 longer by  $\frac{1}{4}$  than wide and  $\frac{1}{2}$  wider behind than before, the usual carinæ extending  $\frac{3}{4}$  of the way to the tip and enclosing between them on the basal  $\frac{1}{2}$  of the joint a polished oval excavation. Ovipositor piceous, full  $\frac{1}{2}$  as long as the body; sheaths black, scarcely tapered, rather hairy than pubescent, the hairs dense and long, and the sheath including its hairs scarcely wider at base than the last tarsal joint of the hind legs. Venter dull whitish. *Legs* bright pale rufous, immaculate save the usual obfuscation of the tarsal tips. *Wings* subhyaline, tinged with smoky yellow; veins black, radius rufous except towards the stigma; stigma black, its basal  $\frac{1}{4}$  whitish. Areolet rhomboid-triangular, the 2d recurrent vein entering it scarcely  $\frac{2}{3}$  of the way to its tip. Bullæ all distinct and normal, C and D very wide apart. Length ♀ .37 inch. Front wing ♀ .29 inch. Ovipos. .22 inch.

One ♀; ♂ unknown to me. Differs from the preceding by the glabrous and highly polished face, the pale tegulæ, the hairy sheaths, and the immaculate legs.

†† *Hind tibiæ black with a medial white band.*

*Pimpla annulipes*, Brullé.—♂ ♀.—Differ from [*pterelas*, Say,] ♀ only as follows:—1. The head is sparsely and finely punctate, especially on the face, which is sometimes so pubescent as to appear opaque, sometimes has the pubescence mostly removed so as to be subpolished. A minute,

glabrous tubercle on the disk of the face. 2. The palpi are generally dull dark rufous in ♀, sometimes pale rufous, sometimes almost whitish, but in ♂ they are always whitish. The antennæ are about  $\frac{4}{5}$  as long as the body, the 1st joint of the flagellum in ♂ 3-3½ times, in ♀ 4-5 times, as long as wide, the entire flagellum ♂ ♀ tinged with rufous beneath. 3. The thorax is finely and sparsely punctate both above and below, and the metathorax is confluent and rather coarsely punctate, and usually more or less covered with fine whitish pubescence so as to be opaque, the posterior declivity and a small area behind the scutellum glabrous and polished, the two glabrous areas never quite confluent. Carinæ all obsolete, except a small basal portion of the two central ones. 4. The abdomen is confluent punctate and opaque; the usual tubercles are subobsolete; and the sides and extreme tips of the intermediate joints are often more or less tinged with sanguineous in ♀, sometimes conspicuously so, but never in ♂. In joint 1 the usual carinæ scarcely extend half way to the tip, and enclose between them a glabrous, circular, subbasal excavation. 5. The ovipositor is  $\frac{1}{2}$  as long as the body; the sheaths pubescent, scarcely tapered, and basally rather narrower than the last tarsal joint of the hind legs. Venter dull rufous, blackish at tip, sometimes all blackish except the extreme base. 6. The legs are pale bright rufous, but in the front legs of more than  $\frac{1}{4}$  of the ♂♂ the trochanters are whitish, in the middle legs ♂ ♀ the second  $\frac{1}{4}$  of the tibia is whitish, and very rarely the first  $\frac{1}{4}$  and the terminal  $\frac{1}{2}$  blackish exteriorly; and in the hind legs the ♂ ♀ extreme tips of the femora and the whole tibia except the second  $\frac{1}{4}$  are black, and the tarsi are pale dusky, often with the base of each joint gradually a little paler. 7. The areolet is mostly rhomboidal, very rarely subtruncate anteriorly, but never peduncled. The bullæ A and B are confluent, and C and D sometimes separated by a small space and sometimes quite confluent. Length ♂ .14-.44 inch; ♀ .20-.47 inch. Front wing ♂ .11-.33 inch; ♀ .20-.38 inch. Ovipos. .10-.19 inch.

Twenty-six ♂; twenty-seven ♀. I bred a single ♀ from a small Lepidopterous pupa. The variation in size is enormous, but all the intermediate grades occur, and the variations enumerated in the description are not correlated with size. In *P. conquisitor*, Say, the size is almost as variable. Very near *tenuicornis*, Cress., described from a single ♀, but differs in the metathorax not being "indistinctly sculptured," in the tegulæ being always white not "piceous," in the anterior coxæ being never black, and in the middle tibiæ being always annulate with whitish and the tips of the hind femora black. Brullé describes only the ♀, and says that "it is only *behind* that the middle tibiæ are black"; whereas it is only on their *exterior* (or superior), not on their *posterior*, surface that they are ever black, and even then but rarely so. Sanguineous tips to the intermediate abdominal joints

occur also in *rufipes*, Brullé (S. Am.), and in *pictipes* ♀, n. sp., *scriptifrons* ♂ ♀, and *annulicornis* ♂ ♀, n. sp.

*Pimpla pictipes*, n. sp.—♀.—Differs from *ruficrus* ♀ only as follows:—  
1. The head is sparsely and very finely punctate, more densely on the face, which is sparsely pubescent and subopaque. 2. The palpi are whitish and the antennæ are brown-black immaculate, with the 1st joint of the flagellum about 4 times as long as wide. 3. The whole thorax is polished and very finely and sparsely punctate except the metathorax which is pubescent, opaque, and closely and more coarsely punctate, except a broad, highly polished, glabrous stripe extending from base to tip and showing at its base the usual two carinæ. Tegulæ white, and before them a white spot pointed in front. 4. The abdomen is subopaque, confluent punctured, rather more coarsely so than the metathorax, and the extreme tip of joints 1-6 is pale sanguineous except laterally. The usual tubercles subobsolete. A very deep, transversely oval, lateral fovea occupying  $\frac{2}{3}$  of the suture between joints 1 and 2. 5. The ovipositor is rufous; the sheaths black, sparsely pubescent, rather wider at base than the last tarsal joint of the hind leg, and but little tapered. Venter blackish, broadly whitish on the sutures except towards the tip. 6. The legs are pale rufous. Front legs with the basal  $\frac{3}{4}$  of the coxæ, and an abbreviated, exterior vitta on the tibiæ, black; tarsi whitish. Middle legs with the second  $\frac{1}{4}$  of their tibiæ white; and an exterior black vitta, interrupted near the tip, on the remaining part; tarsi black, with the basal  $\frac{1}{2}$  of joints 1-3 and 5 white. Hind legs with the tips of the femora black; tibiæ black, with their second  $\frac{1}{4}$  white; tarsi as in middle legs; spurs white. 7. The wings are hyaline; veins black, radius rufous; stigma black, its basal  $\frac{1}{4}$  pale rufous. Areolet rhomboidal. Bullæ all distinct, C and D separated by a pretty wide space. Length ♀ .32 inch. Front wing ♀ .30 inch. Ovipos. .15 inch.

One ♀; ♂ unknown to me. Distinct from *annulipes* by the white spot before the tegula, by the uninterrupted glabrous metathoracic vitta, by the black front coxæ, and by the tarsi of the 4 hind legs distinctly annulate with white. In *Pimpla* the 4th tarsal joint is small as compared with that of *Glypta*, which accounts for its being often not annulate with white like the other 4 joints. The front coxæ ♀ alone being black is abnormal, but occurs also in *tenuicornis* ♀, Cress., *annulicornis* ♀, n. sp., *conquisitor*, ♀ Say, *bicolor* ♀, Brullé (N. Afr.), and *bilineata* ♀, Brullé (S. Afr.) Distinct from *tenuicornis*, Cress., by the white tegula and the white spot before it, and by the beautifully annulate 4 hind tarsi.

*Pimpla annulicornis*, [Walsh, Trans. Am. Ent. Soc. iii. p. 147.]—♂.—Black. Head polished, very finely and sparsely punctured, less sparsely on the face. A narrow white orbit extending from the mouth to the ver-

tex. Palpi whitish, basally pale rufous. Antennæ  $\frac{3}{4}$  as long as the body, 1st joint of flagellum  $4\frac{1}{2}$  times as long as wide, the scapus shining black, the flagellum, except the sutures which are black, pale brown-black above, brownish-white below. *Thorax* polished, very finely and sparsely punctate, much more closely on the subopaque mesonotum; parapsidal lines distinct. Metathorax with the usual two carinæ divergent and pretty distinct as far as the posterior declivity, and the enclosed area as well as the declivity highly polished; its pleura with long, white pubescence. Tegulæ a largish oval spot under the front wing, and another touching the tegula under the humeral suture, a large quadrangular spot on the scutel with a capillary line extending from its tip to the anterior origin of the hind wing, and a transverse spot behind the scutel, all white. *Abdomen* subopaque, finely and confluent punctate, subpolished behind and on the tips of the joints, the usual tubercles subobsolete, and the extreme tip of joints 2-7 or 3-7 pale sanguineous. Joint 1 terminally  $\frac{1}{2}$  narrower than the base of 2,  $\frac{1}{2}$  longer than wide,  $\frac{1}{2}$  wider behind than before; the two carinæ distinct to the tip, where they converge, but obtuse and not lofty behind, and on their basal  $\frac{1}{2}$  enclosing a polished, oval excavation. A deep, subtriangular, lateral fovea in the suture between 1 and 2, occupying full  $\frac{2}{5}$  of the suture. Ovipositor black, not quite  $\frac{1}{2}$  as long as the body, with its tip hooked downwards; sheaths black, very finely pubescent, a little tapered, their basal part about as wide as the last tarsal joint of the hind leg of a ♂ of similar size. Venter blackish, the sutures widely whitish. *Legs* pale rufous. Front legs with the basal  $\frac{3}{4}$  of their coxæ black, and the knees, the inside of the tibiæ, and the whole of the tarsi, whitish. Middle legs with the knees, the tibiæ except an exterior rufous vitta interrupted on the second  $\frac{1}{4}$ , the spurs and the tarsi whitish. Hind legs with the extreme tips of the femora and the basal and terminal  $\frac{1}{4}$  of the tibiæ black, the middle  $\frac{2}{4}$  of the tibiæ and the spurs white; tarsi black, the basal  $\frac{1}{5}$ - $\frac{1}{2}$  of joints 1-3 white; joint 5 missing. *Wings* subhyaline, slightly obfuscated at tip; veins black, radius pale rufous; stigma black, its basal  $\frac{1}{4}$  white. Areolet rhomboidal. Bullæ normal and distinct, C and D pretty widely separated. Length ♀ .47 inch. Front wing ♀ .38 inch. Ovipos. .18 inch.

The ♂ differs from ♀ only as follows:—1. The entire face except the terminal foveæ, the clypeus, the mandibles except their teeth, and the palpi, are white. The white orbits are continued to the occiput, but interrupted opposite the ocelli by a space as long as they are themselves wide. 2. The 1st joint of the flagellum is only  $3\frac{1}{2}$  times as long as wide, and the scapus is brownish-white below. 3. There is sometimes a short, whitish line in each parapsidal groove of the thorax opposite the tegula. 4. The front legs are entirely white, including the coxæ and trochanters, except that the femora are more or less rufous. Middle legs entirely white, except more or less of the outer surface of the coxæ, and the outer surface and sometimes the whole of the femora. Hind legs the same as in ♀, except that the basal  $\frac{1}{2}$  of tarsal joint 4 sometimes, and always of the missing 5th joint, is white. Length ♂ .37-.41 inch. Front wing ♂ .30-.33 inch.

Two ♂; one ♀. Distinct from all the preceding by the multi-annulate antennæ and the white scutel. Similar antennæ occur in *P. ephippium*, Brullé (N. Afr.)

**Pimpla** (*Cryptus*) *conquisitor*, Say (= *Cryptus plurivinctus*, Say).—♀.—Black. Head subopaque, finely and closely punctate, more sparsely on the vertex. Palpi white. Antennæ full  $\frac{2}{3}$  as long as the body, brown-black, the flagellum tinged more or less with rufous below, its 1st joint 4-4½ times as long as wide. Thorax subpolished, closely and finely punctate; metathorax more coarsely rugoso-punctate, its sides pubescent, the two normal carinæ pretty distinct and extending to the posterior declivity, which, as well as the space enclosed by the carinæ, is highly polished. Tegulæ and a quadrangular spot acutely prolonged in front, and underlying the humeral suture and nearly reaching its tip, both white. Abdomen subopaque, confluent and rather coarsely punctate, more sparsely behind and on the tips of the joints. The usual tubercles indistinct or obsolete. Joint 1 longer by  $\frac{1}{2}$  than wide,  $\frac{1}{2}$  wider behind than before, the usual carinæ only reaching half way to the tip, and enclosing an oval, polished excavation. In the suture between 1 and 2, a deep, lateral, transversely oval fovea occupying about  $\frac{1}{3}$  of it. Tips of 1-7, except the part of 1 adjoining the above fovea, and except a small lateral space on the others, terminated by a conspicuous, well-defined white line, of uniform width, which is sometimes tinged with sanguineous. Ovipositor scarcely  $\frac{1}{2}$  as long as the body, piceous; sheaths black, pubescent, a little tapered, basally full as wide as the last tarsal joint of the hind leg. Venter blackish, broadly whitish on the sutures except sometimes behind. Legs pale rufous. Front legs with the coxæ often basally more or less black; trochanters sometimes whitish; tibiæ with a subbasal, exterior, fuscous line, the space around which is more or less extensively whitish. Middle legs with the first  $\frac{1}{4}$  of the tibiæ black and the second  $\frac{1}{4}$  white, the remaining  $\frac{2}{4}$  often with a short exterior black line next the white annulus; spurs whitish, sometimes tipped with black; tarsi dusky, with the basal  $\frac{2}{3}$ - $\frac{1}{2}$  of joints 1-3 and 5 whitish. Hind legs with the terminal  $\frac{1}{6}$  of their femora black; tibiæ white, with their basal  $\frac{1}{3}$  and terminal  $\frac{2}{3}$  black; spurs white; tarsi black, with the basal  $\frac{2}{3}$ - $\frac{1}{2}$  of joints 1-3 and 5 white. Wings subhyaline, tinged with smoky yellow; veins black, radius rufous; stigma black, its basal  $\frac{1}{4}$  reddish-white. Areolet rhomboidal. Bullæ normal, C and D wide apart. Length ♀ .27-.55 inch. Front wing ♀ .23-.49 inch. Ovipos. .12-.27 inch.

The ♂ differs from ♀ only as follows:—1. The 1st joint of the flagellum is only 3 times as long as wide; the terminal  $\frac{2}{3}$ - $\frac{1}{3}$  of the scape, and generally the 1st joint of the flagellum are whitish below, and the rest of the flagellum is rufous below. 2. The 1st joint of the abdomen is about  $\frac{1}{6}$  narrower at tip than the base of the 2d, and except at the extreme base its sides are subparallel. Its carinæ almost always extend nearly to the tip. 3d. In the front legs the coxæ, both trochanters, and the tarsi, are white; and in the middle legs the coxæ are whitish interiorly. Length ♂ .22-.33 inch. Front wing ♂ .17-.25 inch.

Five ♂, ten ♀; one ♂ bred June 7 from a small Lepidopterous pupa beaten off forest-trees. The variation in the size of ♀ is considerable, and evidently deceived Say into treating the sizes as distinct species; but all the intermediate grades occur, and a still wider range is met with in the size of *P. annulipes*, Brullé. (See above.) Say describes his ♀ *plurivinctus* as having been bred from the cocoon of a *Bombyx*, which is probably *Clisiocampa americana*. According to Mr. Cresson (*Practical Entomologist*, i. p. 19), *conquisitor* was bred from this same cocoon.

To this group also appertains apparently *P. tenuicornis*, Cress.

††† *Hind tibiæ black with a basal and a medial white band.*

*Pimpla (Ichneumon) inquisitor*, Say.—♀.—Black. Head highly polished, very sparsely and almost microscopically punctate. Clypeus occasionally piceous. Palpi white. Antennæ  $\frac{1}{2}$ – $\frac{2}{3}$  as long as the body, with joint 1 of the flagellum 3–4 times as long as wide, brown-black, the flagellum more or less tinged with rufous beneath. Thorax highly polished, sparsely and almost microscopically punctate, the metathorax rather closely and finely aciculate on the upper part of its pleura, and with its two carinæ distinct as far as the posterior declivity. Tegulæ, and a contiguous quadrangular spot in front of them, white; the latter sometimes rufescent, and the upper anterior angle of the quadrangle sometimes slightly prolonged. Abdomen subpolished, finely and confluent punctate except towards its tip and the tips of the joints, the normal tubercles pretty distinct. Joint 1 scarcely narrower at tip than the base of 2,  $\frac{1}{4}$  longer than wide and  $\frac{1}{2}$  wider behind than before, the two carinæ distinct nearly to the tip and enclosing on their basal  $\frac{1}{2}$  a highly polished excavation, the polished surface continued between them  $\frac{3}{4}$  of the way to the tip. A shallow, transverse, lateral fovea on the suture between 1 and 2 occupying  $\frac{2}{3}$  of its width. The very extreme tip of joints 5–7, and rarely that of 3 also, pale sanguineous. Ovipositor piceous or black,  $\frac{1}{2}$ – $\frac{3}{4}$  as long as the body; sheaths black, rather densely hairy than pubescent, a little tapered, and basally full as wide as the last tarsal joint of the hind leg. Venter whitish, rarely pale fuscous. Legs pale rufous. Front legs with both trochanters generally whitish, and the tibiæ and tarsi whitish more or less tinged with rufous. Middle legs with the 2d trochanter generally whitish, and the tibiæ and tarsi whitish more or less tinged with rufous, the tibiæ always with their middle  $\frac{1}{3}$  faintly paler. Hind legs with the extreme tip of the femora, except sometimes a very narrow white knee, obfuscated; the tibiæ white, with their second  $\frac{1}{6}$  and terminal  $\frac{1}{6}$ – $\frac{2}{3}$  black, and the tarsi dusky, with the basal  $\frac{2}{3}$ – $\frac{3}{4}$  of joints 1–3 and occasionally of 1–5 white. Wings subhyaline, tinged with smoky yellow; veins black, radius rufous; stigma black, basally pale rufous, sometimes with its disk also pale or dark rufous. Areolet rhomboido-triangular, the 2d recurrent vein entering it  $\frac{2}{3}$  of the



way to the tip. Bullæ normal, distinct; C and D very wide apart, C sometimes almost touching the areolet. Length ♀ .34-.40 inch. Front wing ♀ .29-.36 inch. Ovipos. .20-.29 inch.

The ♂ differs only as follows from the normal ♀ :—1. The 1st abdominal joint is proportionally longer, being full  $\frac{1}{2}$  longer than wide, and its carinæ are loftier and more acute behind. 2. In the front legs the coxæ, as well as both trochanters, are white; in the middle legs both trochanters are white; and in the hind legs both trochanters are white, the tibiæ have their terminal  $\frac{2}{3}$  (not  $\frac{1}{3}$ ) black, and the tarsi have the basal  $\frac{2}{3}$ - $\frac{1}{2}$  of joints 1-5 white. Length ♂ .30 inch. Front wing ♂ .24 inch.

One ♂; six ♀. Sufficiently distinct from all the preceding by the two white bands on the hind tibiæ. The variation in the comparative length of ♀ antennæ and ovipositor is remarkable, some of the longest ♀♀ having the shortest ovipositor and *vice versa*, and a ♀ with a very long ovipositor having very short antennæ. A similar variation in the comparative length of the ovipositor was noticed in *Rhyssa lunator*, Fabr. Say refers his *inquisitor* to *Ichneumon*, but so he does also three other species which he describes as having long ovipositors—*ptercelas*, *concinus*, and *hilaris*—the first of which he himself states to belong to *Pimpla*. His description of the areolet agrees precisely; but the length which he assigns to the body—♀ .25 inch—would be rather too small, if we did not consider that in *annulipes* my largest ♀ is 135 per cent. longer than my smallest one. The sexual distinction in the length of the 1st abdominal joint and the development of its carinæ is noteworthy, and occurs elsewhere also; though it does not appear to have been hitherto observed by authors.

*Pimpla scriptifrons*, [Walsh, Trans. Am. Ent. Soc. iii. p. 148.]—♀.—Differs from the normal *inquisitor* ♀ only as follows:—1. The clypeus is white, blackish at tip; the mandibles are basally white; a white orbit, sometimes obsolete from a little beneath the antennæ to the mouth, extends from the mouth to the occiput; and beneath the antennæ there is a transverse white line, sometimes not attaining the orbits and sometimes medially interrupted for a short space. 2. The terminal  $\frac{1}{2}$  of the scape, as well as the entire flagellum, is rufous beneath. 3. The metathorax is rather closely aciculate up to the two carinæ, leaving the space between them, the posterior declivity, and the lower part of the pleura, all highly polished. Tegulæ, a line under the front wing, a narrow line which is basally clavate underlying the humeral suture nearly to its tip, a transverse line at the tip of the scutel and another behind it, all white. A large, bright rufous patch above the origin of the middle coxæ, and a duller one which is sometimes obsolete on the hind end of the lower face of the mesosternum, the two sometimes confluent and

covering the whole lower surface. 4. On abdominal joint 1 the highly polished surface is confined to the anterior excavation, the carinæ only extending half way to the tip; joints 2-7 mostly with a very narrow sanguineous line behind. 5. The ovipositor is less than  $\frac{1}{2}$  as long as the body, and the sheaths are pubescent rather than hairy. Venter whitish. 6. The front coxæ are white, except sometimes externally; both trochanters of all the legs are white, but the basal one of the 4 hind legs is superiorly rufous; and in the hind tibiæ the terminal  $\frac{2}{5}$  (not  $\frac{1}{5}$ ) is black, and the tarsi are black with the basal  $\frac{2}{3}$ - $\frac{1}{3}$  of joints 1-5 white. Length ♀ .26-.32 inch. Front wing ♀ .22-.27 inch. Ovipos. .10-12 inch.

The ♂ differs from the ♀ only as follows:—1. The clypeus and face are white except the terminal foveæ on the face, and the whole scape is white beneath. 2. The whole mesosternum and its pleura half way to the wing is bright pale rufous. 3. The carinæ on abdominal joint 1 extend nearly to the tip, and the whole space between them is glabrous and polished. 4. The anterior and middle coxæ, besides all the trochanters of all 6 legs, are white immaculate. Length. ♂ 30 inch. Front wing ♂ .24 inch.

One ♂; three ♀. Easily known from my ♂ of *inquisitor* by the white face, the white orbits, and very remarkable white line beneath the antennæ ♀, the rufous mesosternum ♂ ♀, and the white scutel ♂ ♀.

*Pimpla vidua*, n. sp.—♀.—Differs from the normal *inquisitor* ♀ only as follows:—1. A white orbit extends from the insertion of the antennæ to the occiput. 2. It is only the last joint of the scape and the basal joint of the flagellum that is rufous beneath, the rufous color terminating suddenly. 3. The metathorax is rather closely aciculate up to the 2 carinæ, leaving the space between them, the posterior declivity, and the lower part of the pleura, all highly polished. Tegulæ, a line under the front wing, a narrow line which is basally clavate underlying the humeral suture nearly to its tip, a transverse line at the tip of the scutel and another behind it, all white. A small, indistinct, rufous spot above the origin of the middle coxæ. 4. In abdominal joint 1 the highly polished surface is confined to the anterior excavation, the carinæ only extending half way to the tip, and there is no sanguineous tip to any of the joints. 5. The ovipositor is less than  $\frac{1}{2}$  as long as the body, and pubescent rather than hairy; and the venter is distinctly dull rufous. 6. In the front legs the coxæ and both trochanters are white; in the middle legs the 2d trochanter is white, and there is a faint fuscous annulus on the second  $\frac{1}{5}$  of the tibia; and in the hind legs the 2d trochanter is white, the femur is tipped with black up to the white knee, and the tibia has its 2d and terminal  $\frac{1}{5}$  black. Otherwise as in *inquisitor* ♀. Length ♀ .26 inch. Front wing ♀ .20 inch. Ovipos. .10 inch.

One ♀; ♂ unknown to me. Distinct at once from *inquisitor* ♂ by its short white orbits, its white bands on and behind the scutel, and the rufous mesosternal spot; and from *scriptifrons* ♀

by its immaculate black face, black mandibles, immaculate abdomen, and rufous venter.

*Pimpla cœlebs*, n. sp.—♂.—Differs from the normal *inquisitor* ♀ only as follows:—1. The whole face, excepting the terminal foveæ but including a short orbit just passing the origin of the antennæ, is white. 2. The antennæ are full  $\frac{1}{2}$  as long as the body, the scape white below, the flagellum rufous below. 3. The metathorax is rather closely and finely aciculate up to the two carinæ, leaving the space between them, the posterior declivity, and the lower part of the pleura, all highly polished. Sometimes on the hind edge of the scutellum there is a pair of small, obscure, whitish spots, transversely arranged. 4. The 1st joint of the abdomen is full  $\frac{1}{2}$  longer than wide, and its carinæ extend nearly to the tip, and are loftier and more acute than in ♀ *inquisitor*, though the entire joint exactly resembles that of my ♀ of *inquisitor*. All the joints immaculate. 5. . . . 6. The legs are pale rufous. The 4 front legs with the coxæ, both trochanters, knees, tibiæ, and tarsi, all white. Hind legs with the 2d trochanter white; femora with their extreme tips black; tibiæ white, with their 2d and terminal  $\frac{1}{6}$  black; tarsi white, with the extreme tips of the joints black. Length ♂ .30-.35 inch. Front wing ♂ .23-.29 inch.

Two ♂; ♀ unknown to me. But for the white orbits not extending to the occiput, and the absence of the white spot under the front wing, this might be taken for the ♂ of *vidua* ♀, n. sp. But in all the numerous cases known to me where the ♀ in *Ichneumonidæ* has white orbits and a black face and the ♂ a white face, the ♂ has orbits as long as those of ♀. And there seems scarcely any sexual variation in the 3 typical white spots before and under the front wing. Readily known from my ♂ of *inquisitor* by its white face and clypeus; and from *scriptifrons* ♂ by the very short orbits, the absence of the white spot under the front wing, the black metasternum, and the longer 1st abdominal joint.

[This is without doubt the true ♂ of *inquisitor*, Say, as the Entomological Society possesses specimens of both sexes of the latter species bred from the same cocoon. The ♂ correlated with the true ♀ *inquisitor* by Mr. Walsh evidently belongs to another species allied to *alboricta* and *indagatrix*.—CRESSON.]

*Pimpla? indagatrix*, [Walsh, Trans. Am. Ent. Soc. iii. p. 146.]—♂.—Differs from the normal *inquisitor* only as follows:—1. The antennæ are full  $\frac{1}{2}$  half as long as the body, the 1st joint of the flagellum 3 times as long as wide; the scapus is whitish below, and the extreme base of the flagellum is often rufescent. 2. The abdomen has the normal tubercles subobsolete and joints 2-to 4 elongate. Joint 1 is  $\frac{1}{6}$  narrower at tip than the base of 2, full  $\frac{1}{2}$  longer than wide, and nearly of uniform width except at the extreme base. None of the joints are perceptibly sanguineous at tip.

3. The 4 front legs are white, generally immaculate, but occasionally with the femora tinged with rufous. In the hind legs both trochanters are white; the femora have a distinct white knee preceded by a black annulus; and the tibiæ on their second  $\frac{1}{6}$  have only a short lateral black vitta.
4. The wings are hyaline; veins black, radius whitish; stigma black, basally whitish. Radial area short, with a posterior angle of only  $110^\circ$  or  $115^\circ$ . Length  $\sigma$ . 17-.24 inch. Front wing  $\sigma$ . 15-.18 inch.

Four  $\delta$ ;  $\varphi$  unknown to me. Three  $\delta$  were taken Apr. 18 in the window of a dwelling-house infested by carpet-moths (*Tinea tapetzella*, Lin.), on which they had probably been preying. Known easily from my  $\sigma$  of *inquisitor* by the oblong 1st abdominal joint, and from that  $\delta$  and all my other *Pimpla*  $\delta$   $\varphi$  by the short radial area and the elongate intermediate joints of the abdomen. The sides of the abdomen are parallel, and joint 2 is  $\frac{1}{3}$  longer than wide, the succeeding joints each gradually shorter till joint 5 is square. Hence, strictly speaking, it does not belong to *Pimpla* as defined by authors, and it might be referred to *Ephialtes* with almost equal propriety, though the tarsal claws are simple. I refer it provisionally to *Pimpla*, partly on account of its having no tooth on the tarsal claws, partly on account of its coloration, and especially that of its legs, agreeing so closely with that of the species which precede it and being quite different from that of any *Ephialtes* known to me, and partly on account of the short radial area which is utterly abhorrent from *Ephialtes*. For in most *Ephialtes* and in *Pimpla melanocephala* the radial area is very elongate, while in all my other *Pimpla* it is of medium length, its posterior angle being about a quadrant and a half, or  $135^\circ$ . *Indagatrix* is in reality one of those aberrant species which so often perplex and annoy systematists and delight the souls of Lamarck and Darwin.

SECTION 3.—*Areolet triangular*. (*Hind tibiæ as in Section 2, †††*.)

*Pimpla investigatrix*, n. sp.— $\varphi$ .—Differs from the normal *inquisitor*  $\varphi$  only as follows:—1. The antennæ are full  $\frac{1}{2}$  as long as the body. 2. The quadrangular white spot before the tegula is always prolonged in an acute white line which generally reaches half way to the tip of the humeral suture. 3. The abdomen is much more coarsely, and although closely, yet not confluent, punctate. 4. The ovipositor is bright rufous, sometimes so pale as to be almost ochreous. 5. In the front legs both trochanters are always white, but in the middle legs the 2d trochanter is never so. 6. The areolet is subpetiolated and triangular, the 2d recurrent vein

entering it at its extreme tip. 7. The bulla A is represented only by an indistinct semi-bulla on the outer side of the petiole, while in all my 7 specimens of *inquisitor* it is very distinct and straddles its vein as usual. Length ♀ .28-.40 inch. Front wing ♀ .24-.36. Ovipos. .16-.26 inch.

Three ♀ ; ♂ unknown to me. Would be almost certainly taken for a variety of *inquisitor*, so closely does it resemble that species, but for the difference in the areolet, which is perfectly constant in all my specimens of both species.

*Pimpla* [*alboricta*, Cress., Trans. Am. Ent. Soc. iii. p. 147.]—♂.—Differs from the normal ♀ of *inquisitor* only as follows:—1. The clypeus and the mandibles, except their teeth, are white. 2. The antennæ are  $\frac{1}{2}$  as long as the body, and the scape is white below. 3. The abdomen is comparatively much more coarsely, and although closely, yet not confluent, punctate. 4. The 4 front legs are entirely white except the femora, and except that the middle tibiæ have a rufous exterior vitta. In the hind legs both trochanters are white, and the tibiæ have their second  $\frac{1}{8}$  and terminal  $\frac{2}{8}$  (not  $\frac{1}{8}$ ) black. 5. The wings are hyaline; the stigma is whitish at its extreme base; and the areolet is sessile and triangular. The bulla A is entirely absent, the others normal, C and D pretty wide apart. Length ♂ .27 inch. Front wing ♂ .19 inch.

One ♂ ; ♀ unknown to me. Might be taken for the ♂ of the preceding but for the white clypeus and mandibles, which parts do not vary sexually in *Ichneumonidae*, so far as I am aware, where both sexes have a black face. In the coloration of its legs and its general appearance it resembles much my ♂ of *inquisitor*, but is distinguishable not only by its very different areolet, but by the much shorter 1st joint of its abdomen.

#### GENUS POLYSPHINCTA, Gravenhorst.

The insects which I refer to this genus are, to my knowledge, the first representatives of it hitherto described as North American, and apparently belong to two different genera, since the areolar cross-vein in Section 1 is subobsolete, as is said to be the case in *Polysphincta*, and in Section 2 is fully developed. In both the venter is as much excavated as in *Pimpla*, but in Section 2 the 1st joint of the scapus is truncate from inside to outside more obliquely, and the 2d joint is comparatively smaller, than in Section 1. As the 1st Section agrees pretty well with the characters of the genus, and the 2d does not, it is consequently the latter that is aberrant; but I dislike establishing a new genus from a single specimen of one sex, and therefore leave it provisionally as a Sec-

tion of the old genus. In Section 1 there are three bullæ, C, D, and E; in Section 2 four, A, C, D, and E; and in both cases C and D are wide apart.

SECTION 1.—*Areolet obsolete*.

**Polysphincta nigriceps**, n. sp.—♂♀.—*Head* black, subpolished, with very fine, sparse punctures, and a longitudinal carina on the disk of the face. Mandibles, except their extreme tip, and palpi, whitish. Antennæ brown-black,  $\frac{3}{4}$  as long as the body, joint 2 placed nearly at the tip of 1 and larger than usual; 1st joint of flagellum about 4 times as long as wide, the scapus and one or two joints of the flagellum whitish beneath. *Thorax* pale rufous, polished and glabrous, with the parapsidal grooves deeply impressed, and the anterior lobe of the mesonotum very prominent; scutell pale luteous. Tegulæ, a contiguous spot before them, and a line under the front wing, all whitish. Metathorax dark rufous with the pleura pale rufous, opaque and minutely rugoso-punctate, with 4 more or less distinct longitudinal carinæ, the two on each side confluent behind, and the two outer ones  $2\frac{1}{2}$  times further from the middle ones than these are from one another. *Abdomen* subopaque, very minutely rugoso-punctate, subpolished towards the tip and at the tips of the joints. Joint 1 longer by  $\frac{1}{2}$  than wide,  $\frac{3}{4}$  wider behind than before, its sides straight except that they converge at the extreme base, the two carinæ enclosing a shallow, triangular excavation on the basal  $\frac{1}{3}$ , thence subsolete to the tip. Joints 1-5 with an obliquely transverse, impressed, lateral stria, rather beyond the middle, and sloped the contrary way to those of *Glypta*. Joints 1-5 ♂, 1-6 ♀, dark rufous tipped with black; 2-5 stained with translucent clay-yellow on basal  $\frac{1}{3}$  ♂, or basal  $\frac{1}{2}$  ♀; 6 and 7 ♂, or 7 only ♀, entirely black. Ovipositor exerted, twice as long as the abdomen is wide, and, as well as its sheaths, black. Venter whitish, its tip black. *Legs* white; all the 6 femora, the 4 front tibiæ, and the hind coxæ, pale rufous; hind femora with a terminal, superior, dusky vitta; hind tibiæ with their second  $\frac{1}{6}$  dusky externally, and their terminal  $\frac{2}{6}$  black all around; hind tarsi dusky with their basal  $\frac{2}{3}$ - $\frac{1}{3}$  of joints 1-5 gradually whitish. *Wings* subhyaline; veins black; stigma pale dusky,  $\frac{1}{2}$  as long as wide. Radial area short, its posterior angle about  $100^{\circ}$ ; the areolar cross-vein subobsolete, so that the sides of the radial area almost decussate with the two adjoining veins. Bullæ 3, distinct but small; A and B obsolete, C and D wide apart, C placed well forwards, E  $\frac{2}{3}$  of the way to the angle of the 1st recurrent vein. Length ♂ .15, ♀ .18 inch. Front wing ♂ .13, ♀ .15 inch. Ovipos. .03 inch.

One ♂; one ♀. An elegant little species.

**Polysphincta nigrata**, n. sp.—♂.—Differs from the preceding ♂ only as follows:—1. The thorax is black, except that the entire metathoracic pleura and the anterior and posterior margins of the metathoracic pleura are rufous. Tegulæ and a spot before them, a line under the front wing, and the hind edge of the pleura of collare, all white. 2. The 1st joint of the abdomen is scarcely  $\frac{1}{2}$  wider than behind than before, and its two carinæ

are distinct and acute nearly to the tip, and here there is no obliquely transverse stria as on 2-5. 3. Abdominal joints 2-5 have no basal yellow band, and 5 has its terminal  $\frac{1}{2}$  black. 4. In the hind legs the tibiae have their basal  $\frac{2}{3}$  dull rufous and their terminal  $\frac{2}{3}$  dusky; and the tarsi are entirely dusky except the extreme base of joints 1 and 2. Length ♂ .13 inch. Front wing ♂ .10 inch.

One ♂; ♀ unknown to me. Might be taken for a variety of the preceding but for the structural differences in the 1st abdominal joint.

SECTION 2.—*Areolet pentagonal, but terminally subobsolete.*

**Polysphincta pimploides**, n. sp.—♀.—Black. *Head* glabrous and polished, with a longitudinal carina on the disk of the face. Palpi . . . . . Antennae  $\frac{3}{4}$  as long as the body, with the 1st joint of the flagellum 4 times as long as wide, dull rufous above, paler below, and whitish towards the 1st joint, which is dusky above and below. *Thorax* highly polished, glabrous. Tegulae whitish. Metathorax polished, with rather sparse, fine punctures, and the usual two carinae pretty distinct half way to the tip; the lower half of pleura pale rufous. Abdomen subopaque, with rather coarse, confluent punctures, more polished towards the tip and the tips of the joints. The same tubercles on joints 2-5 as in the normal *Pimpla*, and behind them, as well as on the hinder part of joint 1, a shallow, impressed, obliquely transverse, lateral stria, sloped the contrary way to those of *Glypta*. Joint 1 longer by  $\frac{1}{4}$  than wide,  $\frac{3}{4}$  wider behind than before, with the two carinae distinct  $\frac{1}{3}$  of the way to the tip, and enclosing on the basal  $\frac{1}{3}$  of the joint a triangular excavation, but on the terminal  $\frac{2}{3}$  entirely obsolete. Joints 1-3 and the basal part of 4 luteo-rufous. Ovipositor  $\frac{1}{2}$  as long as the body; sheaths pubescent and scarcely tapered, luteo-rufous inside, dusky outside. *Legs* pale rufous; the 4 front legs with their trochanters, tibiae, and tarsi, whitish; the front tibiae with an exterior basal dusky vitta; middle tibiae with their 2d and 3d terminal  $\frac{2}{7}$  pale dusky, and middle tarsi with the tips of the joints obfuscated. Hind legs with the extreme tip of the femora narrowly white, preceded by a black annulus; tibiae white with their second and third  $\frac{1}{2}$  and their terminal  $\frac{2}{7}$  black; tarsi white with the terminal  $\frac{1}{3}$ - $\frac{1}{2}$  of joints 1-3 dusky, 4 and 5 pale rufous. *Wings* subhyaline; veins dusky; stigma twice as long as wide, pale dusky, paler at the extreme base. Radial area moderate, its posterior angle about 135°. Areolar cross-vein as long as usual, and beyond it, but only in certain lights, a very slender, hyaline cross-vein so as to make a completely regular pentagonal areolet. Bullae 4 small but distinct, one (A) on the forward end of the areolar cross-vein, C and D pretty wide apart, and E rather nearer to the angle of the 1st recurrent vein than to the areolar cross-vein. Length ♀ .16 inch. Front wing ♀ .14 inch. Ovipos. .08 inch.

One ♀; ♂ unknown to me. Has exactly the general appearance of *Pimpla inquisitor*, Say; but, besides the difference in the



neuration, is distinguishable by having no white spot before the tegulæ, by the pale bands on the abdomen, by the different structure of the 1st abdominal joint, and by having no foveæ in the suture behind that joint.

GENUS EXETASTES, Gravenhorst.

In this genus the mouth is a little rostriform, the clypeus and mandibles being elongated so that the whole extends beyond the eyes by a space nearly equal to their longer diameter. The clypeal suture is obsolete. In both my species the 1st joint of the antennæ is obliquely truncate rather laterally than beneath as Brullé describes it. The areolet is large and rhomboidal, and varies occasionally by being slightly peduncled. The bullæ are 4, or sometimes 3 only; A small and indistinct, and sometimes entirely obsolete, normally located; B normal; CD well forwards on its vein, and E in *suaveolens*, n. sp. (22 specimens), remarkable for being always nearer to the areolet than to the angle of its vein, but in *fascipennis*, Cress. (1 specimen), exactly in the middle. In a single ♂ of the former species the normal stump of a vein on the 1st recurrent vein is obsolete. Judging from the one species of which I have numerous specimens, the coloration varies but very slightly, the size is remarkably constant, and there are none but the necessary sexual distinctions.

*Exetastes suaveolens*, n. sp.—♂ ♀.—Black. *Head* opaque, with fine, dense punctures; clypeus as long as wide, its terminal  $\frac{1}{2}$  glabrous, polished, and semicircular. Palpi blackish. Antennæ as long as the body, brown-black, very rarely ♀ with the flagellum reddish-brown; 1st joint of the flagellum  $4\frac{1}{2}$  times as long as wide; joint 2 half as long as 1; the rest gradually shorter. *Thorax* subopaque, with fine, dense punctures; scutell elevated. Metathorax square, coarsely rugoso-punctate, with the lunate area and 6 parallel longitudinal carinæ, including the 2 lateral ones, all more or less indistinct, but generally present; the cross-carinæ obsolete. The hind angles above the hind femora terminating in 2 small, robust thorns, transversely arranged. *Abdomen* glabrous and highly polished, more or less curved, usually in a quadrant. Joint 1 thrice as long as wide, twice as wide behind as before, its sides straight, save that the spiraculiferous tubercle projects a little laterally  $\frac{2}{5}$  of the way to the tip, behind which points the whole dorsal surface is gently excavated; carinæ obsolete except at the extreme base. Joint 2 longer by  $\frac{1}{5}$ – $\frac{1}{3}$  than wide, according to the degree of compression; the rest gradually shorter. Ovipositor and sheaths rufous or blackish, very short, exerted, but scarcely projecting beyond the tip of the abdomen. Venter generally protuberant, sometimes excavated, always more carinate longitudinally, except in a single

♂ where the carination is subobsolete. *Legs* black; more or less of the tips and of the superior surface of the 4 front femora yellowish-rufous or rufous; all 6 tibiæ and tarsi bright gamboge yellow, the tarsal tips not obfuscated. *Wings* subhyaline, more or less strongly tinged with fuscous, especially at tip. Veins and stigma black, the stigma occasionally reddish-brown. Radial area elongate. Areolet rhomboidal, occasionally with a short petiole, the side that faces the apex of the wing  $\frac{1}{3}$ - $\frac{1}{2}$  longer than the other 3 (which are equal), and more or less convex externally. Angle of the 1st recurrent vein about  $135^{\circ}$ ; the 2d recurrent vein biangulated, but with the salient angle more or less subobsolete. Length ♂ .47-.54, ♀ .43-.53 inch. Front wing ♂ .39-.46, ♀ .38-.43 inch.

Eighteen ♂, four ♀, all taken in July, 1865, on umbelliferous flowers, except a single ♀. When handled alive, this species gives out the same peculiar smell as do most, if not all, species of *Bombus*. Very near *niger*, Cress., but differs in the wings not being "uniform dark fuliginous," and in the hind tibiæ and tarsi being always yellow (not black). Mr. Cresson's other ten species are quite dissimilar.

*Exetastes fascipennis*, Cress.—♀.—The wing-band is "beyond the middle," as is correctly stated in Mr. Cresson's diagnosis, not "before the middle," as is stated in his description, probably through some clerical or typographical error. There are the same subobsolete carinæ on the meta-thorax as in *suaveolens*; the areolet is shaped precisely as in that species, and the 4 typical bullæ are all present. Length ♀ .45 (.37-.50 Cress.) inch. Front wing ♀ .34 inch. Ovipos. .07 inch.

One ♀; ♂ unknown to me. In having only the 1st joint of the scape rufous, and in many other characters, this species singularly recalls *E. castaneus*, Brullé (S. A.), but differs in the thorax being punctate, not "granulated or rugose."

#### LEPTOBATUS, Gravenhorst.

This genus seems to differ from *Exetastes* only in there being no stump of a vein on the 1st recurrent vein, in the mouth being scarcely rostriform, in the longer ovipositor, and in the prolongation of the 6th ventral beyond the tip of the abdomen. The character assigned to the European species of the 1st abdominal joint being a little contracted at tip, I do not find in mine. As the only strongly distinctive characters between these two genera are peculiar to the ♀, I suspect, from the pattern of coloration being so similar on the thorax, that Mr. Cresson's *Ex. flavitarsis* and *Ex. consimilis*, the ♂♂ only of which are known to me, are congeneric with my *Leptobatus*. The bullæ are 3, B, CD, and E; B normally

located, CD well forwards on its vein, and E nearer to the areolet than to the crook of its vein, as in *Exetastes*.

**Leptobatus illinoensis**, n. sp. — ♀. — Black. *Head* subopaque, with very minute, rather dense punctures, obsolete towards the tip of the clypeus. A small, hunched, longitudinally oval tubercle on the disk of the face, polished on its tip. Clypeus, except its extreme base, and a lateral dot on the vertex adjoining the eye, pale luteous. Palpi blackish. Antennæ brown-black,  $\frac{2}{3}$  as long as the body, rather convolute at tip; 1st joint of the flagellum  $4\frac{1}{2}$  times as long as wide; the 2d joint  $\frac{1}{2}$  as long as the 1st; the rest very gradually shorter. *Thorax* subpolished, with minute, rather dense punctures. Pleura of metathorax finely, its notum rather coarsely, rugoso-punctate; its carinæ entirely obsolete. Tegulæ, a short, slender line under the front wing, a very broad line overlying the humeral suture nearly to its tip and connecting from its tip with a pair of transversely arranged, discoidal spots on the mesonotum by a vitta only  $\frac{1}{2}$  as wide as either the line or the spot, and the sides (but not tip) of the scutel, all yellowish-white. *Abdomen* glabrous and polished, arched nearly in a quadrant, pale rufous except the basal  $\frac{3}{4}$  of joint 1. Joint 1 geniculate  $\frac{2}{3}$  of the way to its tip, twice as long as wide, twice as wide behind as before, its sides straight save that the spiraculiferous tubercle projects slightly  $\frac{2}{3}$  of the way to its tip; carinæ only represented by a shallow, oval excavation before the geniculation, and an abbreviated, narrow, shallow, longitudinal one behind it. Joints 2, 3 and 5 about square; 2 with a small, subbasal, lateral tubercle. Joint 4 rather longer than wide, owing to the compression of the tip of the abdomen; 6 short; the rest retracted above, but obliquely a little exerted below. Venter basally blackish, terminally rufous, basally excavated, terminally protuberant, longitudinally carinate throughout; joint 6 projecting far beyond the dorsal tip of the 6th dorsal, so that, when seen in profile, the tip of the abdomen is obliquely truncate in an angle of  $45^{\circ}$ . Ovipositor dark rufous, nearly  $\frac{1}{3}$  as long as the body; sheaths black, not tapered, rather wider than the last tarsal joint of the hind legs. *Legs* black; the 4 front legs with the superior surface of the femora, the whole of their tibiæ and tarsi, and an elongate spot on the anterior tip of the anterior coxæ, all pale luteous. Hind legs with the superior surface of their femora, except basally, pale luteous; tibiæ and tarsi pale luteous, with the inferior surface of the tibiæ and of the 1st tarsal joint fuscous. *Wings* hyaline, tinged with smoky yellow. Veins black; stigma black, its basal  $\frac{1}{3}$  whitish. Radial area elongate. Areolet rhomboidal, the side facing the apex of the wing a little convex externally, and  $\frac{1}{2}$  longer than the other 3 which are equal. First recurrent vein crooked, but without any stump of a vein at the crook; the 2d subobsoletely biangulated, its bulla occupying nearly the whole 2 sides of the salient angle. Length ♀ .43 inch. Front wing ♀ .33 inch. Ovipos. .13 inch.

One ♂; ♀ unknown to me. The first N. A. species hitherto described. But for the black mandibles, the blackish palpi, and

the different pattern of ornamentation in the legs, this might be taken for the unknown ♀ of *Exetastes flavitarsis*, Cress. In the 2 tubercles on the 2d abdominal joint it resembles *Ex. consimilis* ♂, Cress., the ♀ of which is also unknown, but disagrees in the same respects with that species, and in addition in not having the 1st abdominal joint "distinctly punctured."

#### GENUS AROTES, Gravenhorst.

In this genus, which is remarkable for the cubito-discoidal cell receiving both recurrent veins, as in *Ophion* and the allied genera, there are three distinct bullæ, C, D, and E; C and D separated by a space as long as either of them, the 2d recurrent vein being not angulated but slightly convex externally, and E about in the middle between the angle of the 1st recurrent vein, which is very nearly straight, and the areolar cross-vein.

[In *formosus*, Cress., *vicinus*, Cress., and *venustus*, Cress., the second recurrent nerve is confluent with the areolar cross-vein.—CRESSON.]

**Arotes** (*Acænitus*) **decorus**, Say.—♀.—Black. *Head* subopaque, with dense, rather fine, shallow punctures; vertex glabrous and polished. *Labrum* small, semicircular. *Face*, except a longitudinal, cariniform tubercle on its disk and the foveæ at its tip, orbits very wide on the cheeks and behind the eyes, but interrupted widely opposite the ocelli and narrowly or sometimes scarcely by a dusky suture separating the cheeks from the face, clypeus, labrum, basal  $\frac{1}{2}$  of mandibles, and palpi, all white. *Antennæ*  $\frac{4}{5}$  as long as the body, brown-black, the extreme tip pale brown. *Joints* 11 or 12 to 23 or 24 of the flagellum white. First joint of the flagellum  $3\frac{1}{2}$  times as long as wide; joint 2 shorter by  $\frac{1}{3}$ ; the rest slowly shorter and shorter. *Thorax* subopaque, with dense, rather fine, shallow punctures; the disk of the lobes of the mesonotum, and of the mesothoracic pleura, glabrous and polished. *Metathorax* above subpolished with some coarse rugæ, the carinate areas all complete. Basal and central areas each subquadrate, but the latter rather wider than the former. The hind angles of the lateral areas not prolonged into a thorn, and the hind angles of the metathorax itself rounded off. *Tegulæ*, a broad line under the front wing, a dot or sometimes a triangular spot under the humeral suture near its base and a dot under it near its tip, a broad line overlying the humeral suture from near its tip to behind the tegula, a large quadrate spot on the disk of the mesonotum divaricating in a broad clavate line on the lateral margin of its anterior lobe, both scutels extending into the areas on each side of them, the posterior  $\frac{1}{2}$  of the metanotum, a large spot on the metathoracic pleura, a line on the hind edge and a broad abbreviated band on the front edge of the mesothoracic pleura, the latter sending off a curved branch on to the disk of the pleura, and the two connected by a broad vitta at the bottom of the pleura which sends off obliquely forwards a narrow linear branch on the lower face of the

sternum, a triangular spot on the anterior lateral margin of the collare, and another in front of each anterior coxa, all white. *Abdomen* glabrous and polished. Joint 1 narrower at tip by  $\frac{1}{4}$  than the base of joint 2,  $3\frac{1}{2}$  times as long as wide,  $2\frac{1}{2}$  times as wide at tip as at base, its sides straight and scarcely convergent half way from the tip to the base, where the spiraculiferous tubercle is placed, thence gently concave to near the base, the narrowest part of the joint being  $\frac{3}{4}$  of the way from the tip to the base; the carinæ only represented by a small, shallow, basal excavation. Joint 2 slightly shorter than wide; 3-8 slowly shorter and shorter. Tips of the joints with a white subequal band  $\frac{1}{2}$  as long as joint 4, which on 1-3 does not quite attain the extreme tip. Venter whitish; the 6th ventral elongate-semiconical, full 3 times as long as wide, its tip and inferior edge obfuscated. Ovipositor piceo-rufous, as long as the body; sheaths brown-black, rufous at tip, slowly tapered, basally  $\frac{2}{3}$  as wide as the last tarsal joint of the hind leg. The 4 front legs honey-yellow, with their coxæ and both trochanters white, and their tarsi tinged with white; the 2d trochanter of the middle leg blackish above. Hind legs pale bright rufous, with the coxæ, the 2d trochanters, and the extreme tips of the femora, black; the coxæ superiorly and inferiorly white except at tip; the basal trochanters and the tarsi white. *Wings* subhyaline, tinged with smoky yellow, with a large fuscous spot occupying the apex. Veins black; stigma black, basally paler. Radial area elongate. Length ♀ .60-.64 (nearly .60 Say) inch. Front wing ♀ .52-.54 inch. Ovipos. .60-.63 inch.

Two ♀, captured in South Illinois in June or July; ♂ unknown to me. The ornamentation of the mesosternum in this and the following species strongly recalls that of [*Lampronota scutellaris*, Cress.], except that here the two prongs of the Y differ in thickness as in the Roman Y. Differs from Say's brief description of the ♀ in the mandibles being basally white (not black immaculate); in the markings of the pleura being as white as those of the dorsum of the thorax (not yellowish); in the coxæ and trochanters of the 4 front legs being white (not honey-yellow); and in the hind coxæ not being "honey-yellow with 3 large yellow spots"(!) but black with 2 large white spots. From the promiscuous way in which the items of Say's description are put together, the thorax being described piecemeal in three different places, it seems to have been drawn up in a hurry, and probably the four differences noted above are not variations but mistakes. The species is stated by Say to have been taken in Indiana, most probably near his residence on the Wabash, only 100 miles N.E. of the point where I took my specimens. Say describes the ♂ of what he supposes to be this species as differing from the ♀ in having "prominent spines" on the metathorax. This is not a

sexual character in *Ichneumonidæ*, and consequently his ♂ is probably a distinct species [belonging to the genus *Mesostenus*, Grav.—CRESSON].

*Arotes* [*amœnus*, Cress.].—♂.—Differs from the above ♀ only as follows:—1. The face, including the 2 foveæ, is white immaculate, and the orbits are not at all interrupted below. 2. The antennæ are full as long as the body, the scapus and the base of the flagellum whitish below; and the flagellum white from about joint 15 or 16 to the last joint or two, which are brown. Joint 1 of the flagellum only  $2\frac{1}{2}$  times as long as wide. 3. The hind angles of the lateral carinate areas of the metathorax are prolonged into a short, robust, blunt thorn directed upwards and backwards. 4. The whole pleura of the collare, except an abbreviated black line on its hind margin, is white. The white spot covering the hind  $\frac{1}{2}$  of the metanotum extends forwards so as to cover the central area and the hind  $\frac{1}{2}$  of the basal area; and the broad, abbreviated band on the front edge of the mesothoracic pleura is absent, except the curve branch of it that occupies the disk of the pleura. 5. Abdominal joint 1 is  $4\frac{1}{2}$  times longer than wide, scarcely twice as wide at tip as at base, its sides nearly straight except that the tubercle is very large and prominent in the middle, and the extreme base is a little widened. The carinæ are further represented by a shallow, longitudinal excavation extending from opposite the tubercle nearly to the tip. Joint 2 slightly longer than wide. 6. Besides the terminal white band on joint 1, there is a dorsal white vitta extending  $\frac{2}{5}$  of the way to the tip, and it is only on joint 1 that the terminal white band does not quite attain the extreme tip. 7. The 6th ventral, of course, is small, and, as well as the 7th, white; the 8th is black. 8. The legs are white; the hind legs with their coxæ superiorly and on their extreme base black; their femora and tibiæ, except the knees, superiorly black. 9. The basal  $\frac{1}{4}$  of the stigma is white. Length ♂ .46 inch. Front wing ♂ .41 inch.

One ♂, found dead, but uninjured, in an oak stump; ♀ unknown to me. Differs from the ♀ described by Say as *decorus*, in the mandibles not being basally black; in the antennæ being subterminally white, instead of having a white postmedian annulus of about 8 joints; in the scutellum not having a black disk; in the pectus not being "pale honey-yellow"; in the 1st and 2d abdominal joints being differently marked; in the legs being white, not honey-yellow; and in the hind femora and tibiæ being vittate above with black. In the metathoracic thorns it agrees with it.

ACCENTITES, Gravenhorst (= *Acanitus*, Latreille).

In this genus, which is readily distinguishable from *Arotes* not only by its very robust legs and antennæ, but by the cubito-discoïdal cell receiving only the 1st recurrent vein; there are 3 very

distinct bullæ, C, D, and E, besides a semi-bulla representing the bulla B opposite the anterior tip of the 2d recurrent vein, which semi-bulla is always indistinct but never entirely absent. C and D are wide apart, the 2d recurrent vein being convex externally, and E is pretty close to the angle of its vein, which is angulated at about  $135^{\circ}$ . Brullé says that the tarsal claws are bifid; Latreille does not so state, and they are certainly simple in both sexes in my species. He says also that the 1st joint of the antennæ is truncate obliquely below; it is truncate laterally in my species.

*Acœnites rupinsulensis*, [Walsh, Trans. Am. Ent. Soc. iii. p. 144].—♀.—Rufous. *Head* subopaque, with dense, rather fine, shallow punctures, sparse on the subpolished vertex and clypeus. Orbits, except above, tinged with yellow; tips of the mandibles, orbits of the ocelli, and a quadrate space above the organ of the antennæ and extending to the ocelli, all black. Antennæ  $\frac{2}{3}$  as long as the body, very robust; joint 1 of the flagellum twice as long as wide, 2-6 gradually shorter till 6 is square; the rest slowly shorter and shorter. *Thorax* subpolished, with dense, rather fine, shallow punctures, finer and more sparse on the notum; the disk of the mesothoracic pleura glabrous and highly polished. Metathorax above rather finely rugose; the normal carinate areas all present, save that the central is confluent with the lunate area, which last is glabrous and polished. Scutel tinged with yellow. Inferior angle of the collare, and edges of the 4 front acetabula, black. *Abdomen* obovate, polished, with sparse, almost microscopic punctures. Joint 1,  $2\frac{1}{2}$  times as long as wide,  $2\frac{1}{2}$  times as wide behind as before, its sides nearly straight save that the tubercle forms a gentle convexity on their middle; carinæ obsolete except at the extreme base; a small, transverse, lateral fovea in the terminal suture. Joint 2 wider by  $\frac{1}{2}$  than long; the rest gradually shorter. Venter basally tinged with yellow, more or less excavated, and always longitudinally carinate; joint 6 elongate semiconical, more or less projecting beyond the tip of the dorsal joints as they are more or less retracted. Ovipositor as long as the body, piceo-rufous; sheaths brown-black, rufous at tip, not tapered, basally  $\frac{2}{3}$  as wide as the last tarsal joint of the hind leg, and on their terminal  $\frac{1}{4}$  expanded to full as wide. *Legs* rufous. Four front legs with their tibiæ and tarsi tinged with yellow. Femora of the hind legs with their basal sutures, and a cloudy spot under their tip, black. *Wings* subhyaline, the terminal edge clouded with dusky. Veins black; stigma rufous, edged behind with black. Radial area rather elongate, its posterior angle  $135^{\circ}$ . Length ♀ .32-.35 inch. Front wing ♀ .30-.32 inch. Ovipos. .30-.33 inch.

The ♂ differs from ♀ only as follows:—1. The face, orbits up to the ocelli, cheeks, clypeus, and mandibles except their black tips, are all yellow. 2. The antennæ are full  $\frac{3}{4}$  as long as the body, and the joints slightly more elongate. Joint 1 yellowish beneath. 3. The collare is immaculate and the scutel yellow. 4. The abdomen, as usual, is narrower,  $5\frac{1}{2}$  or 6



times as long as wide, and elongate-rhomboidal, the tip of the 2d joint abutting on the lateral angles of the rhomb, and the extreme base and tip of the rhomb being truncate. Joint 2 only  $\frac{1}{2}$  wider than long. Ventral joint 6 small. 5. There is no spot under the tip of the hind femora. Length ♂ .37 inch. Front wing ♂ .35 inch.

One ♂ ; three ♀. *Ac. stigmaterus*, Say, is a *Xylonomus*. *Ac. decorus*, Say, is an *Arotes*. The only remaining N. A. species that has been referred to this genus is *Ac. melleus* ♀, Say, which probably belongs here, but differs from *rupinsulensis* ♀ in the antennæ being white with their basal  $\frac{1}{2}$  black above (not rufous immaculate), in the occiput having a dusky spot, and in the sutures round the scutel and on the abdominal dorsum being blackish.

[GENUS PHYTODIETUS, Grav.]

*Head* with the face triangularly hunched under the antennæ. Clypeus small, transversely oval, hunched, and prominent. Mandibles bidentate. Antennæ slender, about as long as the body, the 1st joint laterally and obliquely truncate; joints of the flagellum rather long. *Thorax* with the parapsidal grooves subobsolete; the metathorax nearly smooth. *Abdomen* minutely punctate and polished, with no striæ or tubercles, elongate-oval, subsessile ♂, subpetiolated ♀, the 1st joint long and tapered gradually to its base; joint 2 much shorter; the remaining joints slowly shorter and shorter. Venter longitudinally carinate throughout, ♂ slightly depressed, ♀ slightly depressed towards the base, strongly compressed and protuberant towards the tip. Terminal joints of the abdomen not ♂ ♀ retracted, and the 6th ventral ♀ not materially prolonged. Ovipositor moderately long. *Legs* long and slender, especially the hind legs; tibiæ all with an irregular double external row of minute thorns directed obliquely backwards, more conspicuous on the hind tibiæ; spurs normal; claws pectinate; pulvillus shorter than the claws. *Wings* long; radial area and stigma rather long; areolet small, sometimes peduncled, triangular, the 2d recurrent vein, which is regularly convex externally, entering it at its extreme tip; 1st recurrent vein curved suddenly and strongly near its base. Bullæ four, B, C, D, and E; B small and indistinct, normally located; C and D separated by a wide space, and E normal.

Allied to *Banchus* by its pectinate claws, but differs by its abdomen not being sessile, by its ovipositor not being rather long, and

by its areolet not being large and rhomboidal. From *Leptobatus* and *Exetastes* it differs by the "anus being slit," by the pectinate claws, and by the areolet not being large and rhomboidal; and from the former, in addition, by the 6th ventral ♀ not being prolonged. From *Coleocentrus* it seems to differ only by the much shorter ovipositor and the 6th ventral ♀ not being enormously prolonged, and by the pectinate claws. In coloration it partly resembles *Arotes*, but it is separated at once from *Arotes*, *Tropistes*, and *Acwnites*, by the pectinate claws and by the areolet not being obsolete. I know of no other Ichneumonidous genus where the tibiæ are thorned except *Labena*.

[*Phytodietus vulgaris*, Cress., Trans. Am. Ent. Soc. iii. p. 166.]-♀.—Black. Head subopaque, with very minute, dense punctures, sparse on the subpolished vertex. Mandibles, except their teeth, palpi, and a short line on the vertex adjoining the eye, all white. Antennæ full as long as the body, brown-black, rufous beneath towards their tips; 2d joint of the scapus and 1st of the flagellum white exteriorly; 1st joint of the flagellum 4 times as long as wide, the next joint  $\frac{1}{3}$  shorter, the following ones very slowly shorter and shorter. Thorax opaque above, subopaque beneath, with almost microscopic punctures somewhat coarser on the metathorax; carinæ of metathorax only represented by a shallow, obtuse, dorsal stria fading out towards the tip. Tegulæ, a spot under the front wing, a spot under the humeral suture in front of the tegula, and a more or less clavate line above it reaching more or less nearly to its tip, a pair of small spots transversely arranged on the disk of the mesonotum, tip and sides of the scutel or sometimes only the basal  $\frac{2}{3}$  of its sides besides the tip, the whole of the metathoracic scutel, a capillary line leading from either scutel respectively to the front and hind origin of the hind wing, and near the tip of the metathorax a lunate band, broad at each end, and in the middle very broad and advanced forwards in an angle the apex of which is bifid, all white. Lower face of the mesosternum and meso- and metathoracic pleura half way to either wing, pale bright rufous. Abdomen polished, with very minute but not sparse punctures. Joint 1 longer by  $\frac{1}{2}$  than wide,  $2\frac{1}{2}$  times wider behind than before, its sides straight or scarcely convex; carinæ only represented by a triangular excavation on the basal  $\frac{1}{4}$ . A small, transverse, lateral fovea cutting off the acutely prominent anterior angle of joint 2 so as to simulate a continuation of the suture. Joint 2,  $\frac{2}{3}$  as long as 1, and  $\frac{1}{2}$  wider than long. A white line on the tip of joints 1-7, narrower on the hindmost of them. Venter blackish, the base of joint 1 and the tips of 1-6 all whitish. Ovipositor as long as the abdomen, piceo-rufous; sheaths black, finely pubescent, not tapered, as wide as the last tarsal joint of the hind legs. Legs pale rufous. Front legs with the coxæ, both trochanters, knees, tibiæ, and tarsi, white, the tibiæ exteriorly infuscated. Middle legs with the tip of the 1st and the whole of the 2d trochanter, broad knees, tibiæ, and tarsi, all white, the femora obfuscated

at tip inside the white knee, the tibiæ, except the white knee, with an exterior fuscous vitta which on their middle  $\frac{1}{2}$  is more or less obsolete, and with a narrow, terminal, fuscous annulus, and the tarsal joints with their extreme tips fuscous. Hind legs, with the tip of the 1st and the whole of the 2d trochanter and broad knees, white; the base of the 1st trochanter, the extreme base and a subterminal annulus on the femora, the tibiæ except the white knees and except an exterior white vitta occupying their middle  $\frac{1}{2}$ , and the tarsi, except the basal  $\frac{1}{2}$ - $\frac{2}{3}$  of the 1st joint which is white, all black. Spurs whitish. *Wings* hyaline; veins black, radius rufous; stigma rufous edged with black. Radial area rather long, its posterior angle  $135^{\circ}$ . Areolet triangular, its interior side  $\frac{1}{2}$  shorter than either of the others, peduncled, the peduncle about  $\frac{1}{2}$  as long as the triangle. Bullæ 4; B at the extreme posterior end of its vein, C close to the anterior end of its vein, D very widely separated from C, and E rather further from the areolet than from the angle of its vein. Length ♀ .28 inch. Front wing ♀ .27 inch. Ovipos. .14-.15 inch.

*Variety.*—♀.—Differs from [normal] ♀ only as follows:—1. The short white lines on the vertex are reduced to mere white dots. 2. The 2d joint of the scapus and the 1st of the flagellum are pale brown, not white, exteriorly. 3. Only the basal  $\frac{1}{2}$  of the side of the scutel, in addition to its tip, is white. 4. The white band on the metathorax is reduced to 4 white dots arranged in a transverse curve with its convex side forwards; and there are no rufous markings on the sternum, except a large spot above the hind coxa and a small one above the middle coxa. 5. The ovipositor is very pale rufous. 6. In the middle legs there are no fuscous markings, save that the extreme tip of the tibiæ and of the tarsal joints is fuscous. In the hind legs the vitta on the tibiæ is pale brown, so as to be scarcely noticeable, not white; and the tarsi are dusky, not black, and with no vestige whatever of any white annulus on joint 1. Length ♀ .31 inch. Front wing ♀ .30 inch. Ovipos. .14 inch.

The ♂ differs from [normal] ♀ only as follows:—1. The face, cheeks, orbits to the top of the vertex and half way up behind the eye from the cheeks, and the clypeus, are all white. 2. The entire scapus is white below, and the 1st joint of the flagellum is only  $3\frac{1}{2}$  times as long as wide. 3. The carinæ of the metathorax are entirely obsolete. 4. In addition to the white markings of ♀, the entire lower face of the pro- and meso-sternum and half way up the mesothoracic pleura, a line on the anterior margin of the collar, and a short longitudinal line before the hind coxa, are all white. No rufous markings. 5. The 1st abdominal joint is only  $\frac{3}{4}$  wider behind than before, and joint 2 is scarcely wider than long. 6. The venter is mostly whitish except at tip, and the carina is protuberant at base but not at tip. 7. In the middle legs, the coxæ as well as both trochanters, broad knees, tibiæ, and tarsi, are white; and there are no fuscous markings save that the extreme tip of the tibiæ and of the tarsal joints is fuscous. In the hind legs, the coxæ are inferiorly white towards their tips, both trochanters are white except two dusky lines on the upper face of the basal one, and on the tibiæ the exterior median white vitta becomes a median white annulus. Length ♂ .29 inch. Front wing ♂ .26 inch.

One ♂ ; three ♀ . The sexual distinctions, especially the 4th, are very striking.

[*Phytodietus distinctus*, Cress., Trans. Am. Ent. Soc. iii. p. 166.]—♀.—Differs from [*vulgaris*, normal] ♀ only as follows: 1. The disk and anterior edge of the clypeus, a narrow orbit interrupted for a short space just behind the vertex and also on the cheeks, the palpi, and all but the tip of the mandibles, are yellowish-white. 2. The antennæ are pale brown exteriorly from the 2d joint of the scapus inclusive to their tip. 3. The carinæ of the metathorax are entirely obsolete; only the tegulæ, a dot before them under the humeral suture and another above it near its tip, the tip and basal  $\frac{1}{2}$  of the sides of the scutel, the whole of the metathoracic scutel, and a capillary line leading from either scutel respectively to the front and hind origin of the posterior wing, and near the tip of the metathorax a broad, subequal, lunate band, are white; and there are no rufous markings. 4. Abdominal joint 1 is  $2\frac{1}{2}$  times as long as wide, twice as wide behind as before, its sides straight save that there is an obtuse salient angle near the base, and that half way to the tip the tubercles project a little laterally; carinæ commencing at the apex of the salient angle and fading out opposite the tubercle. Only the tip of ventral joints 1-5 (not 1-6) is white. Ovipositor pale rufous. 5. The legs are pale rufous immaculate, save that in the front legs the basal  $\frac{1}{2}$  of the coxæ and the tarsal claws, in the middle legs the last tarsal joint, and in the hind legs the terminal  $\frac{1}{3}$  of the tibiæ and the whole of the tarsus, are fuscous. Length ♀ .33 inch. Front wing ♀ .29 inch. Ovipos .15 inch.

One ♀ ; ♂ unknown to me. Remarkably like the preceding, and yet quite distinct by the simple coloration of the legs. The front trochanters are very slightly tinged with yellow, so that the ♂ will probably have them yellow.

CRYPTOCENTRUS, new genus (= *Cryptocentrum*, Kirby?).

*Head* with the face triangularly hunched under the antennæ. Clypeus short, wide, and transversely truncate for its whole breadth. Mandibles bidentate. Antennæ slender, about as long as the body, the 1st joint laterally and obliquely truncate; the joints of the flagellum rather long. *Thorax* with the parapsidal grooves subobsolete, the metathorax with the carinate areas mostly distinct, scutel trapezoidal. *Abdomen* polished, very minutely punctate, with no striæ or tubercles, elongate-oval, . . . ♂, subpetiolated ♀, the 1st joint rather long and tapered gradually to its base, joints 2-6 slowly shorter and shorter, 7 and 8 almost retracted so that the tip of the abdomen is almost squarely truncate. Venter ♂ . . . , ♀ slightly depressed towards the base, strongly compressed and protuberant towards the tip, and longitudinally carinate throughout, the 6th ventral squarely trun-

cate. Ovipositor and sheaths very short. *Legs* long and slender, especially the hind legs. *Tibiæ* without thorns. *Spurs* normal. *Claws* unarmed, the pulvillus as long as the claws. *Wings* long. *Radial area* and *stigma* rather short. *Area* obsolete, the areolar cross-vein transverse and as long as usual. First recurrent vein much curved but not angulated; 2d recurrent vein obsoletely bi-angulated. *Bullæ* 4, A, C, D, and E; A subobsolete and placed on the anterior end of the areolar cross-vein, C and D close together on either side of the salient angle of their vein, and E pretty close to the curve of its vein.

Differs from *Tropistes*, *Arotes*, and *Acænites*, by its very short ovipositor; from *Arotes*, by the cubito-discoidal cell receiving only one recurrent vein; and from *Arotes* and *Acænites*, by the 6th ventral ♀ not being prolonged. From the other Banchoid genera it is separated at once by its obsolete areolet. Kirby's genus *Cryptocentrum* disagrees with mine in the anterior margin of the face being "crenate" and in the abdomen being "sessile," so that the first joint is "rather wider at the apex."

**Cryptocentrus** [(*Tryphon*?) *submarginatus*, Cress., Proc. Ent. Soc. Phil. iii. p. 274.]—♀.—Black. *Head* subopaque, with very minute, rather sparse punctures, obsolete on the polished vertex. *Clypeus*, 4 equidistant small spots adjoining it behind, the outer one on its lateral extremity, mandibles except their teeth, and palpi, all white. *Antennæ* brown-black, the 1st joint of the flagellum 4 times as long as wide, the 2d joint  $\frac{1}{2}$  shorter, the rest slowly shorter and shorter. *Thorax* subpolished, with very minute, rather sparse, shallow punctures. *Metanotum* minutely rugoso-punctate, subopaque; the basal area equilaterally triangular, the central area obovate and truncate at tip; lateral areas with their exterior side obsolete and no cross-carinae; posterior area distinct and bisected lengthways by a carina. *Tegulae*, a line under the front wing, a spot under the humeral suture before the tegula, and a broad line overlying it nearly to its tip and terminally clavate, and also both scutels, all white. Lower face of the mesosternum and meso- and meta-thoracic pleura half way to either wing, all pale rufous. *Abdomen* polished, densely and very minutely rugoso-punctate; the 1st joint subopaque, longer by  $\frac{1}{2}$  than wide,  $2\frac{1}{2}$  times wider at tip than at base, its sides straight, its carinae distinct nearly to the tip, its terminal  $\frac{1}{2}$  with one or two longitudinal striae on each side of the carinae; joint 2 square; 3-5 slowly shorter; 6 short; 7 and 8 very short. Tip of 2-7 and middle  $\frac{1}{2}$  of the tip of 1 with a white line; very slender on 1, 2, 6, and 7. Venter with the longitudinal carina whitish. Sheaths of ovipositor black, not quite attaining the tip of the dorsum. *Legs* pale rufous. Four front legs with their coxæ and trochanters white, except the basal  $\frac{2}{3}$  of the middle coxæ; middle legs with the basal  $\frac{1}{2}$  of their tibiæ and of their tarsi whitish; the

tarsal tips fuscous. Hind legs with their 2d trochanters white; the upper face of their 1st trochanters, the tibiæ, and the tarsi, black; the second and third  $\frac{1}{3}$  of the tibiæ white. Spurs whitish. *Wings* subhyaline; veins black; radius rufous; stigma black, its extreme base whitish. Radial area with its posterior angle about  $120^{\circ}$ . Length ♀ .30 inch. Front wing ♀ .29 inch.

One ♀; ♂ unknown to me. Has the general appearance of [*Phytodietus vulgaris*, Cress.], but is generically very distinct. Differs from *Cryptocentrum lincolatum*, Kirby (Lat.  $65^{\circ}$ ), in the face, orbits, and inferior surface of the scape, not being white; in the abdominal white fasciæ not being interrupted behind, and in the smaller size (.30 instead of .50 inch).

**Xylonomus** [*albopictus*, Cress., Trans. Am. Ent. Soc. iii. p. 168.]—♀. —Black. *Head* subpolished, with very minute, sparse punctures, and on the face with some rugæ. Face projecting beyond the eyes  $\frac{1}{3}$  of their shorter diameter. Clypeus pale rufous, slightly longer than the flagellum of the antennæ is wide. Labrum semicircular, very pale rufous. Mandibles unarmed. Palpi pale luteous. Orbits very wide on the occiput, but with a very narrow interruption just beneath the antennæ and a wide one on the vertex, and also two dots transversely arranged on the disk of the face, all white. Antennæ  $\frac{3}{4}$  as long as the body, perceptibly clavate at tip; the 1st joint of the flagellum thrice as long as wide; joints 3-5 a little longer than 1; 2, 6 and 7 about equal to 1. Joint 10-13 of the flagellum white. *Thorax* subopaque, with very minute, dense rugæ, coarse on the pleura of the metathorax but subobsolete on the front  $\frac{1}{3}$  of its notum, which is subpolished. Carinate areas of the metathorax all present, save that the basal area is obsolete by the confluence of its two sides. Central area  $\frac{1}{2}$  longer than wide, truncate-ovate, with its base angular. Lateral areas apically prolonged in a somewhat slender thorn directed upwards and backwards. Tegulæ, a line under the front wing, a line underlying the humeral suture nearly to its tip from a little in front of the tegula, a transversely oblong spot on the scutel and a line behind it, posterior declivity of the metathorax including its thorns, and a line on the anterior edge of its pleura, all white. Mesonotum in front of the scutel rufo-piceous. *Abdomen* subopaque, with very minute, dense rugæ. Joint 1 thrice as long as wide, thrice as wide behind as before, the two carinæ indistinctly traceable to the tip, where they coalesce in a subpolished tubercle, but with the space between them level; the sides of the joint straight, save that the spiraculiferous tubercle is placed  $\frac{2}{3}$  of the way to their tip. Joint 2 with a deeply indented stria cutting off an isosceles triangle on its basal corner, so that the stria strikes the side of the joint  $\frac{1}{3}$  of the way to its tip, from which point proceeds a short, shallow stria sloped the contrary way. Joint 2 longer by  $\frac{1}{3}$  than wide; 3 wider by  $\frac{1}{3}$  than long; 4-7 short; 8 as long as wide; 7 and 8 concave above, and 8 tapered and obtusely pointed when viewed from above, acutely pointed in profile. Joint 1 with a lateral, longitudinally oval, white spot at tip; 2 with a longitudinally obsemioval spot at tip; 3-7 with terminal white fascia, inter-

rupted on its middle  $\frac{1}{3}$ , and in 3 and 4 not quite attaining the lateral margin. Ovipositor  $\frac{2}{3}$  as long as the body, piceous; sheaths black, tapered, slightly expanded at the extreme tip. Venter dull luteous except at tip, much inflated, and longitudinally carinate. Four front *legs* pale rufous; middle legs with the knees white, the upper face of the femora and the sub-basal suture of the tibiæ obfuscated, and the last tarsal joint black. Hind legs black, with the trochanters, the inner surface of the middle of the tibiæ, and tarsal joints 1-4, cloudy rufous; and the basal  $\frac{1}{7}$  of the tibiæ white. *Wings* subhyaline; veins black; stigma black, its basal  $\frac{1}{4}$  white. Radial area  $3\frac{1}{2}$  times as long as wide. Length ♀ .43 inch. Front wing ♀ .30 inch. Ovip. .26 inch.

One ♀; ♂ unknown to me, but in all probability will have a white face. By far the smallest N. A. species yet described, and distinct at once by its semifasciate abdomen.

#### GENUS ECHTHRUS, Gravenhorst.

This genus may be recognized by its subpetiolated abdomen and nearly cubical head, and by its pentagonal areolet. The group in which the areolet is obsolete would seem to belong to a distinct subgenus. In my species the clypeal suture is obsolete, but the two foveæ that normally lie in that suture are present, and indicate that the clypeus is typically as short as it is in *Odontomerus* and *Xylonomus*, thus exposing a large portion of the labrum in all these genera. I do not find this character referred to anywhere by authors, but it is obvious in *E. reluctator* (Europe). The mandibles are toothed as in *Odontomerus*. The bullæ are large and generally 4 in number, A, B, CD, and E; A indistinct, rarely obsolete; B sometimes occupying the whole exterior side of the areolet; CD often with a dark dot between them and together occupying the middle  $\frac{1}{3}$  of the 2d recurrent vein, which is usually perfectly straight; and E pretty close to the crook of the 1st recurrent vein. In *E. (Cryptus) ornatipennis*, Cresson, which is an aberrant species in other respects, the 1st recurrent vein is nearly straight, E is close to the areolet, and CD adjoins the areolet.

**Echthrus annulicornis**, n. sp.—♀.—Black. *Head* opaque, very minutely and densely rugoso-punctate, subopaque on the vertex. Mandibles (except their teeth and their lower edge) and labrum rufous. Palpi whitish. Antennæ brown-black,  $\frac{2}{3}$  as long as the body, obviously clavate, the terminal  $\frac{1}{4}$  of the flagellum being nearly twice as thick as the extreme base; joint 1 of the flagellum slender and 4 times as long as wide, 2 shorter by  $\frac{1}{4}$ , and the following joints very slowly shorter; joints 7-9 of the flagellum whitish. *Thorax* opaque, very minutely and densely rugoso-punctate, subglabrous and polished on the pleura. Parapsidal grooves subobsolete. Meta-



thorax with the basal area small and elongate, the central area enormously large and divaricated widely behind so as to cut off the lateral areas, which have no cross-carina, from the posterior area. Tegulae white. *Abdomen* regularly oval, opaque, very minutely and densely punctate, subpolished towards the tip and the tips of the joint. Joint 1 strongly arched,  $2\frac{1}{2}$  times as long as wide, thrice as wide behind as before, its sides straight except at the extreme tip, where they are first incurved and then excurved in a blunt tubercle, behind and outside which in the following joint is a similar tubercle; the two usual carinae faintly traceable to the tip, and enclosing a shallow excavation. Joints 2 and 8 as broad as long, and 8 curved upwards at tip as in *Xylonomus* ♀; 3 and 7 shorter by  $\frac{1}{2}$  than broad; the rest short. The extreme terminal edge of 3-7 whitish, which in 5-7 is due only to the connecting membrane being white. Ovipositor  $\frac{3}{5}$  as long as the body, inserted  $\frac{2}{3}$  of the way from the tip of the abdomen to its base; sheaths black, tapered, pubescent, basally half wider than the last tarsal joint of the hind leg. Venter longitudinally carinate, scarcely excavated, black, the sutures whitish. *Legs* rufous; front legs with the tibiae strongly inflated; middle legs with the basal  $\frac{1}{3}$  of the tibiae, and the basal  $\frac{1}{2}$  of the 1st tarsal joint, white; tip of tarsus brown. Hind legs with the terminal  $\frac{1}{3}$  of the femora and the tibiae and tarsi black, save that the knees, the basal  $\frac{1}{3}$  of the tibiae, the spurs, and the basal  $\frac{1}{2}$  of the 1st tarsal joint, are all white. *Wings* hyaline; veins black; stigma black, its extreme base white. Radial area moderate; its posterior angle about  $120^\circ$ . The 1st recurrent vein slightly curved inside the middle; the 2d slightly convex outside. Length ♀ .25 inch. Front wing ♀ .20 inch. Ovipos. .10 inch.

One ♀; ♂ unknown to me. The front tibiae are similarly inflated in *E. reluctator* (Europe), in two Canadian species [*niger*, Cress., and *abdominalis*, Cress.] and in *Cryptus? ornatipennis*, Cress. (Cuba), which, like *annulicornis*, has the last two abdominal joints very large, and the last upcurved as in *Xylonomus* ♀. It is only this last joint that is here rufous, and not the last two as is stated by Cresson.

GENUS LABENA, Cresson (= *Mesochorus*, Brullé non Gravenhorst).

*Head* subcubical; the space between the eyes widest at the insertion of the antennae, thence narrowed rapidly towards the vertex, more slowly towards the mouth, so that the eyes are slightly but distinctly emarginate. Clypeus moderate, transversely suboval, almost entirely concealing the labrum. Mandibles bidentate. Antennae ♂ about as long as the body, ♀ about  $\frac{3}{5}$  as long as the body; ♂ ♀ neither tapered nor clavate; joint 1 very obliquely truncate on the outside, and enclosing nearly the whole of joint 2; joints of the flagellum rather short. *Thorax* with the

parapsidal grooves almost obsolete, the space behind the wings about as long as that before them. Scutel subquadrate, flattish. Metathorax subcubical, its sides a little convergent behind, the carinate areas generally, except the posterior one, all distinct. *Abdomen* subpetiolated, elongate-clavate ♂, clavate ♀, ♂ ♀ with their sides nearly straight to beyond the middle, the tip of joint 5 ♂, joint 6 ♀, being about the widest part. Joint 1 ♂ ♀ very long; joint 2 longer than wide; 3-6 ♂ nearly square; 3-7 ♀ shorter than long and subequal. Venter unusually corneous, flattened, and with a slight longitudinal carina; anus ♀ slit, as it is termed. Ovipositor about as long as the abdomen; sheaths moderate, not tapered. *Legs* moderate; in all 6 legs ♀ tarsal joints 3 and 4 very short, and joint 3 acutely bilobate; in the middle legs ♀ tarsal joint 2 likewise short, and the tibiæ twisted as in *Odontomerus* ♀; in all 6 tarsi ♂ only joint 4 very short, and all the joints simple. Both front and middle tibiæ ♀ inflated near their tip. Hind coxæ ♂ ♀ long and slender, and about as long and stout as the femora. Spurs normal. Claws simple, moderately long, much longer than the pulvillus. *Wings* moderate. Stigma and radial area elongate. Areolet large, rhomboidal, its anterior angle often more or less truncate. The 1st recurrent vein almost straight; the 2d recurrent vein biangulated. Bullæ 4, B, C, D, and E; B on the posterior end of its vein, C close to the areolet, D between the two angles of its vein, and E nearer to the tip than to the base of its vein.

Closely allied to *Xorides*, Grav., by its face narrowed below, and to *Odontomerus* by the singularly twisted middle tibiæ ♀, which character is here subobsoletely shown also in the front tibiæ ♀. Differs from all the other genera belonging to this group, except certain *Echthrus*, viz., *annulicornis*, n. sp., and *ornatipennis*, Cress., by the obsolete parapsidal grooves and the large areolet. From *Echthrus* it is at once separated by the emarginate eyes, the long clypeus, the singular structure of ♀ legs, and the separation of bullæ C and D. The abdomen ♂ is not greatly elongate and almost linear, as in *Xorides* ♂ and *Xylonomus* ♂, nor has it the tips of its joints emarginate as in *Xorides* ♂. Brullé entirely overlooked some of the most remarkable characters of this genus, e.g. the face narrowed in front, the subcubical head, and the bilobate 3d tarsal joint ♀, and confounded it with *Mesochorus*, Grav., which appertains to an entirely different group, and has a trans-

verse head, a short ovipositor, and normal tibiae and tarsi ♂ ♀. He was unacquainted with ♂, and therefore of course failed to recognize the singular sexual differences in the tarsi. Cresson, on the other hand, as well as Say, entirely overlooked the twisted 4 front tibiae and the short 3d and 4th tarsal joints of the ♀.

**Labena grallator**, Say (= *Mesochorus fuscipennis*, Brullé).—♀.—Rufous. Head polished and glabrous; face and clypeus opaque, with rather coarse, transverse rugae; the foveae at the tip of the face rather small and indistinct. Clypeus with its base in a circular arc of 60°, its tip in a circular arc of 120°. Orbits, especially in front, tinged with yellow; tip of the mandibles black. Antennae  $\frac{3}{8}$  as long as the body; the flagellum with its extreme base and tip slightly tapered, its 1st joint  $2\frac{1}{2}$  times as long as wide, the 2d shorter by  $\frac{1}{2}$ , the rest very slowly shorter and shorter. The third  $\frac{1}{4}$  of the flagellum tinged with yellow, the terminal  $\frac{1}{4}$  with black. Thorax subopaque, finely and confluent punctured, the disk and hind edges of the mesothoracic pleura glabrous and polished. Metathorax with the basal area subquadrate, the central area hexagonal and  $\frac{1}{2}$  longer and wider than the basal area with its posterior side sometimes indistinct, the lateral areas strongly constricted by their cross-carinae and open behind, so that the posterior area is almost obsolete. Tegulae, a line under the front wing, both scutels and the areas on either side of them, a longitudinal line on each side of the mesonotum, a line under the humeral suture, the hind part of the metathorax and the anterior edge of its pleura, all tinged with yellow. Many of the sutures, both above and below, stained with black. Abdomen glabrous and polished at base, subopaque, with very minute, dense punctures towards the tip. Joint 1,  $3\frac{1}{2}$  times as long as wide,  $2\frac{1}{2}$  times as wide at tip as at base, its sides straight for  $\frac{2}{3}$  of the way to the tip, thence with the usual tubercle, immediately behind which they are slightly constricted and thence to the tip very gently convex. Joint 2 longer by  $\frac{1}{2}$  than wide and shorter by  $\frac{2}{3}$  than joint 1. Extreme tip of joint 1, and obsoletely so of one or two of the following joints, yellow; the sutures toward the base of the abdomen blackish. Venter reddish-brown except at tip, the tip of joints 1 and 2 tinged with yellow. Ovipositor  $\frac{3}{4}$  as long as the body, rufous, its tip black; sheaths yellowish rufous, their tips black. Legs with the tarsi and especially the tibiae tinged with yellow. Front tarsal joints proportioned as 14, 7, 2, 2, 7; middle tarsal joints as 14, 4, 2, 2, 12; hind tarsal joints as 14, 7, 2, 2, 9. Wings shining umber brown, with their extreme base and an ill-defined cloud reaching from the base of the stigma to the hind edge of the 2d cell of the limb, hyaline; hind wings with the postcostal space and sometimes also with an elongate discoidal cloud, hyaline. Veins black; stigma rufous,  $4\frac{1}{2}$ –5 times as long as wide. Areolet large, rhomboidal, with the 2d recurrent vein entering it slightly beyond the middle, and with its anterior angle slightly truncate. Bullae all distinct, large, white, and encroaching on the brown membrane of the wing. Length ♀ .76 (.60 Brullé) inch. Front wing ♀ .64 inch. Ovipos. .53 (.43 Brullé) inch.

The ♂ differs from the ♀ only as follows:—1. The entire face, front up to the ocelli, and clypeus, are yellow; and the mandibles, except their teeth, and palpi are tinged with yellow. 2. The antennæ are nearly as long as the body, immaculate except the black tip, and except that 1st joint of the scapus is yellowish beneath. 3. The parts of the thorax that in ♀ are tinged with yellow are here yellow; and in addition there is a large yellow spot on the upper part of the mesothoracic pleura, and an indistinct yellowish vitta on its lower part; and the lateral disk of the collare is yellow. Moreover the sutures are more generally and more strongly black, and there is a black line dividing the two yellow spots on the mesothoracic pleura. 4. The tip of the abdomen is almost microscopically punctured and subpolished. Joint 1 is  $3\frac{1}{4}$  times as long as wide, and joint 2 is  $\frac{3}{4}$  longer than wide. The tip of joints 1-5 is yellow, less widely and distinctly in each successive joint. In the venter the tip of 1-5 is yellowish. 5. In all 6 legs the tarsal joints are proportioned as 10, 6, 5, 2. 6. The wings are subhyaline, except that the principal veins are clouded with brown, and the tip beyond the areolet in the front wing, and a corresponding portion in the hind wing, is brown. The areolet is also more strongly truncate in front, so as to be almost rhomboido-pentagonal, and the bullæ are much less distinct. Length ♂ .48 inch. Front wing ♂ .41 inch.

One ♂, taken at large; one ♀, bred from Hickory-wood infested by the Coleopterous *Cerasphorus cinctus*, Fabr., and one ♀ from *Coll. Ent. Soc.* The genus may perhaps inhabit other timber-trees as well, but like the genus *Carya* (Hickory) it seems to be peculiar to America, the only other known species—*rufus*, Brullé—occurring in Guiana. Brullé's specimen was taken in Carolina. His specimen (♀) approximated to the ♂ somewhat more than mine in the yellow markings of the mouth and thorax, and he says nothing of the hyaline markings of the wings, nor of the black tip to the ovipositor. This is the only Ichneumonidous species known to me where the abdomen is more strongly sculptured and more opaque behind than before.

#### GENUS ODONTOMERUS, Gravenhorst.

There are here three very distinct but very small bullæ, C, D, and E—C and D widely separated from each other, and E rather nearer to the angle of its vein than to the areolet—besides two indistinct semi-bullæ occupying the position of A and B. It is singular that Say should have noticed the bullæ in *Od. mellipes*, when they are so very much more obvious in many other species where he has said nothing at all about them.

**Odontomerus** (*Anomalon*) **mellipes**, Say.—♀.—Black. *Head* polished, with fine, shallow, not thick-set punctures, subobsolete on the vertex. Face finely rugose on the disk, which projects beyond the eyes by  $\frac{1}{2}$  their shorter diameter. Clypeus scarcely as long as the flagellum of the antennæ is wide. Labrum truncate-triangular, rufous, with long rufous hairs. Mandibles toothed as usual, and basally rufous. Palpi pale luteous. Antennæ  $\frac{4}{5}$  as long as the body, with the 1st joint of the flagellum 3 times as long as wide, and the following 6 or 7 joints rather shorter, the 3d joint the longest of them; the scapus black, the flagellum reddish-brown. *Thorax* polished, with very fine, sparse, shallow punctures, the spaces on each side of the two scutels with oblique striæ. Metathorax a little rugose, its carinate areas complete save that the basal is confluent with the central area, which thus becomes thrice as long as wide. Lateral areas angulated behind, and terminating in an acute thorn directed upwards and backwards. *Abdomen* polished, with very minute, sparse, shallow punctures. Joint 1 with a few rugæ and with the 2 usual carinæ indistinctly traceable to the tip,  $2\frac{3}{4}$  times as long as wide and  $2\frac{3}{4}$  times as wide behind as before, its sides straight save that their extreme tip is a little constricted and the spiraculiferous tubercle is placed  $\frac{2}{3}$  of the way to the tip. Joints 2 and 7 as long as wide, 2 with some close-set, transverse rugæ at its extreme base; the other joints short. Dorsal surface of 7, and especially of 8, concave, and 8 tapered to a point acute in profile view and obtuse when viewed from above. Ovipositor  $\frac{1}{2}$  longer than the body, its sheaths full  $\frac{1}{2}$  wider on the terminal  $\frac{1}{3}$  than at base. Venter excavated, of an obscure gray except at tip. *Legs* pale rufous; the tips of the middle tarsi and the whole of the hind ones fuscous; the middle tibiæ twisted as usual; the tooth on the hind femora placed  $\frac{2}{3}$  of the way to the tip. *Wings* subhyaline slightly tinged with smoky yellow; veins black; stigma black, basally whitish. First recurrent vein slightly angulated at  $\frac{1}{3}$  of the way to its tip; 2d recurrent vein slightly convex towards the tip of the wings. Length ♀ .38 (.34 Say) inch. Front wing ♀ .28 inch. Ovipos. .50 inch.

One ♀; ♂ unknown to me. Distinct from *Æthiops*, Cress., and *abdominalis*, Cress., by its metathoracic thorns and by its wings not being fusco-hyaline, and from the latter by its rufous coxæ and trochanters and black abdomen. From *striatus*, Brullé (Europe), it is separated at once by the tooth on its hind thighs

#### GENUS XYLONOMUS, Gravenhorst.

This genus is very remarkable for possessing the same sub-basal, oblique, connate suture on the tibia which occurs in certain of the true Spiders, and which becomes a free suture in the Phalangoid Spiders—a peculiarity which does not appear to have been hitherto noticed by authors. The tendency hereby exhibited is further exemplified in the double trochanters found throughout the entire family *Ichneumonidæ*. If we can trust to Westwood's

figure, there exist in the tibia of the degraded Dipterous genus *Nycteribia* two subequidistant transverse sutures, whether free or connate does not appear. But Latreille says nothing of any such character in his description of the genus, and I find no traces of any sutures, whether free or connate, in the tibia of the allied genus *Ornithomyia*. (See Westw. *Intr.* ii. p. 580, fig. 15, and Latr. *Gen. Cr. Ins.* iv. p. 364.) The bullæ of *Xylonomus* are very distinct but exceedingly minute, being stouter than the width of the vein they occupy. They are three in number, C, D, and E; C and D equidistant from each other and from the tips of their vein, and E much nearer the tip than the base of its vein. There are no semi-bullæ, such as exist in *Odontomerus*, probably because the areolar cross-vein is here subobsolete.

*Xylonomus (Acanitus) stigmapterus*, Say.—♀.—Black. Head opaque with fine, dense rugæ, subopaque on the vertex. Face projecting beyond the eyes  $\frac{1}{3}$  of their shorter diameter. Clypeus scarcely as long as the flagellum of the antennæ is wide. Labrum longitudinally semi-oval, with rufous hairs. Mandibles unarmed. Palpi black, the last 3 joints whitish. Antennæ  $\frac{3}{4}$  as long as the body, scarcely clavate at tip; the 1st joint of the flagellum thrice as long as wide, and 6 or 7 of the following joints  $\frac{1}{4}$  longer than the 1st; a white annulus extending from the middle of the 9th to the middle of the 14th joint of the flagellum. Thorax finely and closely punctured, subpolished below, subopaque above, with 8 or 9 coarse, close-set longitudinal striæ at the bottom of the collare, and some finer bi-flabellate ones at the base of the middle lobe of the mesonotum. Metathorax finely rugoso-punctate, coarsely on its pleura; the carinate areas all perfect save that the basal is confluent with the central area, the latter equally long with the former but  $2\frac{1}{2}$  times as wide, of a truncate-ovate shape, and  $\frac{1}{3}$  longer than wide. Tip of each lateral area prolonged into a robust thorn directed upwards and backwards. Mesonotum in front of the scutel (except the striate space), and also the mesothoracic pleura, rufo-piceous. Abdomen subopaque, with very minute, dense, shallow rugæ; coarser on the 1st joint, especially towards its tip. Joint 1,  $3\frac{1}{2}$  times as long as wide, thrice as wide behind as before, its sides straight except that their extreme tip is a little constricted and that the spiraculiferous tubercle is placed  $\frac{3}{4}$  of the way to their tip; the two carinæ indistinctly traceable to the tip, where they coalesce in a small, subpolished tubercle, the intervening space level except that there is a shallow groove opposite the spiracles. On joint 2, from the tip of each carina of joint 1, there proceeds an oblique, impressed stria to the middle of the lateral edge so as to cut off an elongate triangle. Joint 2 longer by  $\frac{1}{2}$  than wide; 3 longer by  $\frac{1}{4}$  than wide; 4-7 short; 8 rather longer than wide, curved upwards and tapered to an acute point when viewed in profile, truncate-triangular when viewed from above. Ovipositor piceous,  $\frac{1}{3}$  longer than the body; sheaths black, regularly and slowly tapered to the

extreme tip, where they expand nearly to their basal width. Venter inflated and longitudinally carinate. *Legs* black; front knees, extreme base of all 6 tibiæ, basal  $\frac{1}{2}$ - $\frac{1}{3}$  of the 1st tarsal joint in all 6 legs, and in the 4 front legs the whole of joints 3 and 4, but in the hind legs of 4 only, all white. *Wings* hyaline, the front ones slightly tinged with smoky yellow; veins black; stigma black, its basal  $\frac{1}{3}$  white. Radial area nearly 4 times as long as wide. Length ♀ .93 (over 1.00 Say) inch. Front wing ♀ .64 inch. Ovip. 1.10 inch.

One ♀, taken in August on a decayed Elm infested by *Physocnema brevilineum*, Say, and *Leptura americana*, Hald.; ♂ unknown to me. Distinct from *Cincticornis*, Cress., by the white annulations of the legs. Say, in referring this species to *Acænitus*, evidently mistook the prolongation of the 8th dorsal joint of the abdomen for the prolongation of the 6th ventral found in that and other allied genera.

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